

November 2016

BD2SCARUDQPCH_EXT_CSF_1V8_CL_LIN

Cell Description

BD2SCARUDQPCH_EXT_CSF_1V8_CL_LIN

- The cell has "dont_use" attribute set in the Synopsys STF.
- The cell has "dont_touch" attribute set in the Synopsys STF.

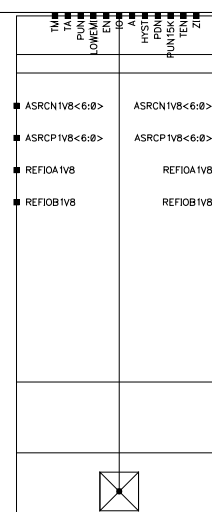
Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
 C : Output (capacitive) load
 R : Rising edge
 F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA

-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261

PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot Tr + 0.153 \cdot C$	$1.117 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.620 + 0.242 \cdot Tr + 0.112 \cdot C$
R-010	$1.415 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.275 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.913 + 0.126 \cdot Tr + 0.092 \cdot C$
F-000	$0.616 + 0.186 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.214 \cdot Tr + 0.124 \cdot C$	$1.056 + 0.243 \cdot Tr + 0.106 \cdot C$
R-000	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.022 + 0.083 \cdot Tr + 0.096 \cdot C$	$1.498 + 0.128 \cdot Tr + 0.086 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot Tr$	$0.514 + 0.195 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-10	$0.340 + 0.137 \cdot Tr$	$0.518 + 0.195 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
HZ-00	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-00	$0.339 + 0.137 \cdot Tr$	$0.518 + 0.196 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
ZH-10	$1.450 + 0.199 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.248 \cdot Tr + 0.100 \cdot C$	$1.946 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-10	$0.878 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.152 + 0.245 \cdot Tr + 0.127 \cdot C$	$1.665 + 0.283 \cdot Tr + 0.112 \cdot C$
ZH-00	$1.156 + 0.196 \cdot Tr + 0.123 \cdot C$	$1.042 + 0.249 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.282 \cdot Tr + 0.086 \cdot C$
ZL-00	$0.647 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.245 \cdot Tr + 0.124 \cdot C$	$1.088 + 0.283 \cdot Tr + 0.106 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.180 \cdot C$	$0.597 + 0.241 \cdot Tr + 0.296 \cdot C$

R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$

Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-10	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-00	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-00	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102^{\circ}\text{C}$	$0.007 + 0.149^{\circ}\text{C}$	$0.011 + 0.233^{\circ}\text{C}$
R-1	$0.004 + 0.056^{\circ}\text{C}$	$0.006 + 0.088^{\circ}\text{C}$	$0.010 + 0.146^{\circ}\text{C}$
F-0	$0.005 + 0.101^{\circ}\text{C}$	$0.007 + 0.148^{\circ}\text{C}$	$0.011 + 0.231^{\circ}\text{C}$
R-0	$0.004 + 0.056^{\circ}\text{C}$	$0.006 + 0.089^{\circ}\text{C}$	$0.010 + 0.146^{\circ}\text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123^{\circ}\text{C}$	$0.140 + 0.102^{\circ}\text{C}$	$0.231 + 0.086^{\circ}\text{C}$
R-101	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.331 + 0.068^{\circ}\text{C}$
F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						
IO tog- gling/Output stable	$0.473 + 0.130^{\circ}\text{Tr}$	$0.594 + 0.408^{\circ}\text{Tr}$	$0.361 + 0.058^{\circ}\text{Tr}$	$0.460 + 0.194^{\circ}\text{Tr}$	$0.282 + 0.041^{\circ}\text{Tr}$	$0.360 + 0.131^{\circ}\text{Tr}$
ZI toggling	0.271	$0.275 + 0.006^{\circ}\text{Tr}$	0.204	$0.206 + 0.003^{\circ}\text{Tr}$	0.158	$0.159 + 0.002^{\circ}\text{Tr}$
For vdde1v8						
IO tog- gling/Output stable	$7.855 + 0.050^{\circ}\text{Tr}$	$9.132 - 0.041^{\circ}\text{Tr}$	$6.611 - 0.004^{\circ}\text{Tr}$	$7.631 + 0.008^{\circ}\text{Tr}$	5.674	$6.541 + 0.023^{\circ}\text{Tr}$
ZI toggling	$0.472 + 0.584^{\circ}\text{Tr}$	$0.657 + 1.080^{\circ}\text{Tr}$	$0.353 + 0.262^{\circ}\text{Tr}$	$0.504 + 0.509^{\circ}\text{Tr}$	$0.278 + 0.119^{\circ}\text{Tr}$	$0.383 + 0.237^{\circ}\text{Tr}$

BD2SCARUDQPCH_EXT_CSF_1V8_FC_INNER

Cell Description

BD2SCARUDQPCH_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCH_EXT_CSF_1V8_FC_LIN

Cell Description

BD2SCARUDQPCH_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

Cell Description

BD2SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCL_EXT_CSF_1V8_CL_LIN

Cell Description

BD2SCARUDQPCL_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCL_EXT_CSF_1V8_FC_INNER

Cell Description

BD2SCARUDQPCL_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot Tr + 0.153 \cdot C$	$1.117 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.620 + 0.242 \cdot Tr + 0.112 \cdot C$
R-010	$1.415 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.275 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.913 + 0.126 \cdot Tr + 0.092 \cdot C$
F-000	$0.616 + 0.186 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.214 \cdot Tr + 0.124 \cdot C$	$1.056 + 0.243 \cdot Tr + 0.106 \cdot C$
R-000	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.022 + 0.083 \cdot Tr + 0.096 \cdot C$	$1.498 + 0.128 \cdot Tr + 0.086 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot Tr$	$0.514 + 0.195 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-10	$0.340 + 0.137 \cdot Tr$	$0.518 + 0.195 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
HZ-00	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-00	$0.339 + 0.137 \cdot Tr$	$0.518 + 0.196 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
ZH-10	$1.450 + 0.199 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.248 \cdot Tr + 0.100 \cdot C$	$1.946 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-10	$0.878 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.152 + 0.245 \cdot Tr + 0.127 \cdot C$	$1.665 + 0.283 \cdot Tr + 0.112 \cdot C$
ZH-00	$1.156 + 0.196 \cdot Tr + 0.123 \cdot C$	$1.042 + 0.249 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.282 \cdot Tr + 0.086 \cdot C$
ZL-00	$0.647 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.245 \cdot Tr + 0.124 \cdot C$	$1.088 + 0.283 \cdot Tr + 0.106 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.180 \cdot C$	$0.597 + 0.241 \cdot Tr + 0.296 \cdot C$
R-1	$0.319 + 0.191 \cdot Tr + 0.112 \cdot C$	$0.423 + 0.213 \cdot Tr + 0.141 \cdot C$	$0.596 + 0.239 \cdot Tr + 0.196 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.382 + 0.058 \cdot Tr + 0.191 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.298 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.395 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.561 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot Tr + 0.153 \cdot C$	$1.116 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.621 + 0.244 \cdot Tr + 0.112 \cdot C$
R-101	$1.414 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.274 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.912 + 0.130 \cdot Tr + 0.092 \cdot C$
F-001	$0.616 + 0.188 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.215 \cdot Tr + 0.124 \cdot C$	$1.057 + 0.245 \cdot Tr + 0.106 \cdot C$
R-001	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.020 + 0.087 \cdot Tr + 0.096 \cdot C$	$1.497 + 0.130 \cdot Tr + 0.086 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.869 + 0.254 \cdot Tr$
LZ-01	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.792 + 0.255 \cdot Tr$
HZ-11	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.870 + 0.253 \cdot Tr$
LZ-11	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.793 + 0.254 \cdot Tr$
ZH-01	$1.157 + 0.197 \cdot Tr + 0.123 \cdot C$	$1.044 + 0.245 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.283 \cdot Tr + 0.086 \cdot C$
ZL-01	$0.648 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.244 \cdot Tr + 0.124 \cdot C$	$1.090 + 0.281 \cdot Tr + 0.106 \cdot C$
ZH-11	$1.450 + 0.198 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.246 \cdot Tr + 0.100 \cdot C$	$1.947 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-11	$0.879 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.153 + 0.242 \cdot Tr + 0.127 \cdot C$	$1.666 + 0.280 \cdot Tr + 0.112 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCL_EXT_CSF_1V8_FC_LIN

Cell Description

BD2SCARUDQPCL_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

Cell Description

BD2SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

Cell Description

BD2SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.117 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.620 + 0.242 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-010	$1.415 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.275 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.913 + 0.126 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-000	$0.616 + 0.186 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.214 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.056 + 0.243 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-000	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.022 + 0.083 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.498 + 0.128 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot \text{Tr}$	$0.514 + 0.195 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-10	$0.340 + 0.137 \cdot \text{Tr}$	$0.518 + 0.195 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
HZ-00	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.871 + 0.251 \cdot \text{Tr}$
LZ-00	$0.339 + 0.137 \cdot \text{Tr}$	$0.518 + 0.196 \cdot \text{Tr}$	$0.794 + 0.251 \cdot \text{Tr}$
ZH-10	$1.450 + 0.199 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.248 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.946 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-10	$0.878 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.152 + 0.245 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.665 + 0.283 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-00	$1.156 + 0.196 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.042 + 0.249 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.282 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-00	$0.647 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.245 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.088 + 0.283 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.420 + 0.217 \cdot \text{Tr} + 0.180 \cdot \text{C}$	$0.597 + 0.241 \cdot \text{Tr} + 0.296 \cdot \text{C}$
R-1	$0.319 + 0.191 \cdot \text{Tr} + 0.112 \cdot \text{C}$	$0.423 + 0.213 \cdot \text{Tr} + 0.141 \cdot \text{C}$	$0.596 + 0.239 \cdot \text{Tr} + 0.196 \cdot \text{C}$
F-0	$0.286 + 0.050 \cdot \text{Tr} + 0.137 \cdot \text{C}$	$0.382 + 0.058 \cdot \text{Tr} + 0.191 \cdot \text{C}$	$0.551 + 0.074 \cdot \text{Tr} + 0.291 \cdot \text{C}$
R-0	$0.298 + 0.030 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.395 + 0.047 \cdot \text{Tr} + 0.119 \cdot \text{C}$	$0.561 + 0.071 \cdot \text{Tr} + 0.195 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.116 + 0.214 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.621 + 0.244 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-101	$1.414 + 0.037 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.274 + 0.083 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.912 + 0.130 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-001	$0.616 + 0.188 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.730 + 0.215 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.057 + 0.245 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-001	$1.129 + 0.037 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.020 + 0.087 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.497 + 0.130 \cdot \text{Tr} + 0.086 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.869 + 0.254 \cdot \text{Tr}$
LZ-01	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.792 + 0.255 \cdot \text{Tr}$
HZ-11	$0.331 + 0.138 \cdot \text{Tr}$	$0.513 + 0.196 \cdot \text{Tr}$	$0.870 + 0.253 \cdot \text{Tr}$
LZ-11	$0.339 + 0.138 \cdot \text{Tr}$	$0.517 + 0.196 \cdot \text{Tr}$	$0.793 + 0.254 \cdot \text{Tr}$
ZH-01	$1.157 + 0.197 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.044 + 0.245 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.524 + 0.283 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-01	$0.648 + 0.191 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.753 + 0.244 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.090 + 0.281 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-11	$1.450 + 0.198 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.303 + 0.246 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.947 + 0.283 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-11	$0.879 + 0.193 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.153 + 0.242 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.666 + 0.280 \cdot \text{Tr} + 0.112 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

Cell Description

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot Tr + 0.153 \cdot C$	$1.117 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.620 + 0.242 \cdot Tr + 0.112 \cdot C$
R-010	$1.415 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.275 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.913 + 0.126 \cdot Tr + 0.092 \cdot C$
F-000	$0.616 + 0.186 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.214 \cdot Tr + 0.124 \cdot C$	$1.056 + 0.243 \cdot Tr + 0.106 \cdot C$
R-000	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.022 + 0.083 \cdot Tr + 0.096 \cdot C$	$1.498 + 0.128 \cdot Tr + 0.086 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot Tr$	$0.514 + 0.195 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-10	$0.340 + 0.137 \cdot Tr$	$0.518 + 0.195 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
HZ-00	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-00	$0.339 + 0.137 \cdot Tr$	$0.518 + 0.196 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
ZH-10	$1.450 + 0.199 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.248 \cdot Tr + 0.100 \cdot C$	$1.946 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-10	$0.878 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.152 + 0.245 \cdot Tr + 0.127 \cdot C$	$1.665 + 0.283 \cdot Tr + 0.112 \cdot C$
ZH-00	$1.156 + 0.196 \cdot Tr + 0.123 \cdot C$	$1.042 + 0.249 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.282 \cdot Tr + 0.086 \cdot C$
ZL-00	$0.647 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.245 \cdot Tr + 0.124 \cdot C$	$1.088 + 0.283 \cdot Tr + 0.106 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.180 \cdot C$	$0.597 + 0.241 \cdot Tr + 0.296 \cdot C$
R-1	$0.319 + 0.191 \cdot Tr + 0.112 \cdot C$	$0.423 + 0.213 \cdot Tr + 0.141 \cdot C$	$0.596 + 0.239 \cdot Tr + 0.196 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.382 + 0.058 \cdot Tr + 0.191 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.298 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.395 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.561 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot Tr + 0.153 \cdot C$	$1.116 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.621 + 0.244 \cdot Tr + 0.112 \cdot C$
R-101	$1.414 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.274 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.912 + 0.130 \cdot Tr + 0.092 \cdot C$
F-001	$0.616 + 0.188 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.215 \cdot Tr + 0.124 \cdot C$	$1.057 + 0.245 \cdot Tr + 0.106 \cdot C$
R-001	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.020 + 0.087 \cdot Tr + 0.096 \cdot C$	$1.497 + 0.130 \cdot Tr + 0.086 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.869 + 0.254 \cdot Tr$
LZ-01	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.792 + 0.255 \cdot Tr$
HZ-11	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.870 + 0.253 \cdot Tr$
LZ-11	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.793 + 0.254 \cdot Tr$
ZH-01	$1.157 + 0.197 \cdot Tr + 0.123 \cdot C$	$1.044 + 0.245 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.283 \cdot Tr + 0.086 \cdot C$
ZL-01	$0.648 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.244 \cdot Tr + 0.124 \cdot C$	$1.090 + 0.281 \cdot Tr + 0.106 \cdot C$
ZH-11	$1.450 + 0.198 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.246 \cdot Tr + 0.100 \cdot C$	$1.947 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-11	$0.879 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.153 + 0.242 \cdot Tr + 0.127 \cdot C$	$1.666 + 0.280 \cdot Tr + 0.112 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

Cell Description

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot Tr + 0.153 \cdot C$	$1.117 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.620 + 0.242 \cdot Tr + 0.112 \cdot C$
R-010	$1.415 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.275 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.913 + 0.126 \cdot Tr + 0.092 \cdot C$
F-000	$0.616 + 0.186 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.214 \cdot Tr + 0.124 \cdot C$	$1.056 + 0.243 \cdot Tr + 0.106 \cdot C$
R-000	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.022 + 0.083 \cdot Tr + 0.096 \cdot C$	$1.498 + 0.128 \cdot Tr + 0.086 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot Tr$	$0.514 + 0.195 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-10	$0.340 + 0.137 \cdot Tr$	$0.518 + 0.195 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
HZ-00	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-00	$0.339 + 0.137 \cdot Tr$	$0.518 + 0.196 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
ZH-10	$1.450 + 0.199 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.248 \cdot Tr + 0.100 \cdot C$	$1.946 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-10	$0.878 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.152 + 0.245 \cdot Tr + 0.127 \cdot C$	$1.665 + 0.283 \cdot Tr + 0.112 \cdot C$
ZH-00	$1.156 + 0.196 \cdot Tr + 0.123 \cdot C$	$1.042 + 0.249 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.282 \cdot Tr + 0.086 \cdot C$
ZL-00	$0.647 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.245 \cdot Tr + 0.124 \cdot C$	$1.088 + 0.283 \cdot Tr + 0.106 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.180 \cdot C$	$0.597 + 0.241 \cdot Tr + 0.296 \cdot C$
R-1	$0.319 + 0.191 \cdot Tr + 0.112 \cdot C$	$0.423 + 0.213 \cdot Tr + 0.141 \cdot C$	$0.596 + 0.239 \cdot Tr + 0.196 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.382 + 0.058 \cdot Tr + 0.191 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.298 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.395 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.561 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot Tr + 0.153 \cdot C$	$1.116 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.621 + 0.244 \cdot Tr + 0.112 \cdot C$
R-101	$1.414 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.274 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.912 + 0.130 \cdot Tr + 0.092 \cdot C$
F-001	$0.616 + 0.188 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.215 \cdot Tr + 0.124 \cdot C$	$1.057 + 0.245 \cdot Tr + 0.106 \cdot C$
R-001	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.020 + 0.087 \cdot Tr + 0.096 \cdot C$	$1.497 + 0.130 \cdot Tr + 0.086 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.869 + 0.254 \cdot Tr$
LZ-01	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.792 + 0.255 \cdot Tr$
HZ-11	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.870 + 0.253 \cdot Tr$
LZ-11	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.793 + 0.254 \cdot Tr$
ZH-01	$1.157 + 0.197 \cdot Tr + 0.123 \cdot C$	$1.044 + 0.245 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.283 \cdot Tr + 0.086 \cdot C$
ZL-01	$0.648 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.244 \cdot Tr + 0.124 \cdot C$	$1.090 + 0.281 \cdot Tr + 0.106 \cdot C$
ZH-11	$1.450 + 0.198 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.246 \cdot Tr + 0.100 \cdot C$	$1.947 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-11	$0.879 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.153 + 0.242 \cdot Tr + 0.127 \cdot C$	$1.666 + 0.280 \cdot Tr + 0.112 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

Cell Description

BD2SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0375	0.0365	0.0357
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0330	0.0326	0.0324
HYST Input Cap.	0.0326	0.0323	0.0321
IO Input Cap.	1.3648	1.3644	1.3648
IO Max Load	51.365	51.364	51.365
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0190
PUN Input Cap.	0.0261	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0374	0.0364	0.0355
TEN Input Cap.	0.0315	0.0311	0.0308
TM Input Cap.	0.0449	0.0442	0.0441
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.837 + 0.185 \cdot Tr + 0.153 \cdot C$	$1.117 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.620 + 0.242 \cdot Tr + 0.112 \cdot C$
R-010	$1.415 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.275 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.913 + 0.126 \cdot Tr + 0.092 \cdot C$
F-000	$0.616 + 0.186 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.214 \cdot Tr + 0.124 \cdot C$	$1.056 + 0.243 \cdot Tr + 0.106 \cdot C$
R-000	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.022 + 0.083 \cdot Tr + 0.096 \cdot C$	$1.498 + 0.128 \cdot Tr + 0.086 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.332 + 0.137 \cdot Tr$	$0.514 + 0.195 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-10	$0.340 + 0.137 \cdot Tr$	$0.518 + 0.195 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
HZ-00	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.871 + 0.251 \cdot Tr$
LZ-00	$0.339 + 0.137 \cdot Tr$	$0.518 + 0.196 \cdot Tr$	$0.794 + 0.251 \cdot Tr$
ZH-10	$1.450 + 0.199 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.248 \cdot Tr + 0.100 \cdot C$	$1.946 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-10	$0.878 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.152 + 0.245 \cdot Tr + 0.127 \cdot C$	$1.665 + 0.283 \cdot Tr + 0.112 \cdot C$
ZH-00	$1.156 + 0.196 \cdot Tr + 0.123 \cdot C$	$1.042 + 0.249 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.282 \cdot Tr + 0.086 \cdot C$
ZL-00	$0.647 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.245 \cdot Tr + 0.124 \cdot C$	$1.088 + 0.283 \cdot Tr + 0.106 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.311 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.180 \cdot C$	$0.597 + 0.241 \cdot Tr + 0.296 \cdot C$
R-1	$0.319 + 0.191 \cdot Tr + 0.112 \cdot C$	$0.423 + 0.213 \cdot Tr + 0.141 \cdot C$	$0.596 + 0.239 \cdot Tr + 0.196 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.382 + 0.058 \cdot Tr + 0.191 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.298 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.395 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.561 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.836 + 0.186 \cdot Tr + 0.153 \cdot C$	$1.116 + 0.214 \cdot Tr + 0.127 \cdot C$	$1.621 + 0.244 \cdot Tr + 0.112 \cdot C$
R-101	$1.414 + 0.037 \cdot Tr + 0.130 \cdot C$	$1.274 + 0.083 \cdot Tr + 0.100 \cdot C$	$1.912 + 0.130 \cdot Tr + 0.092 \cdot C$
F-001	$0.616 + 0.188 \cdot Tr + 0.151 \cdot C$	$0.730 + 0.215 \cdot Tr + 0.124 \cdot C$	$1.057 + 0.245 \cdot Tr + 0.106 \cdot C$
R-001	$1.129 + 0.037 \cdot Tr + 0.123 \cdot C$	$1.020 + 0.087 \cdot Tr + 0.096 \cdot C$	$1.497 + 0.130 \cdot Tr + 0.086 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.869 + 0.254 \cdot Tr$
LZ-01	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.792 + 0.255 \cdot Tr$
HZ-11	$0.331 + 0.138 \cdot Tr$	$0.513 + 0.196 \cdot Tr$	$0.870 + 0.253 \cdot Tr$
LZ-11	$0.339 + 0.138 \cdot Tr$	$0.517 + 0.196 \cdot Tr$	$0.793 + 0.254 \cdot Tr$
ZH-01	$1.157 + 0.197 \cdot Tr + 0.123 \cdot C$	$1.044 + 0.245 \cdot Tr + 0.096 \cdot C$	$1.524 + 0.283 \cdot Tr + 0.086 \cdot C$
ZL-01	$0.648 + 0.191 \cdot Tr + 0.151 \cdot C$	$0.753 + 0.244 \cdot Tr + 0.124 \cdot C$	$1.090 + 0.281 \cdot Tr + 0.106 \cdot C$
ZH-11	$1.450 + 0.198 \cdot Tr + 0.130 \cdot C$	$1.303 + 0.246 \cdot Tr + 0.100 \cdot C$	$1.947 + 0.283 \cdot Tr + 0.092 \cdot C$
ZL-11	$0.879 + 0.193 \cdot Tr + 0.153 \cdot C$	$1.153 + 0.242 \cdot Tr + 0.127 \cdot C$	$1.666 + 0.280 \cdot Tr + 0.112 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.328 + 0.165 \cdot \text{Tr}$	$0.508 + 0.233 \cdot \text{Tr}$	$0.862 + 0.300 \cdot \text{Tr}$
LZ-011	$0.232 + 0.031 \cdot \text{Tr}$	$0.360 + 0.112 \cdot \text{Tr}$	$0.554 + 0.164 \cdot \text{Tr}$
HZ-110	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.908 + 0.296 \cdot \text{Tr}$
LZ-110	$0.237 + 0.289 \cdot \text{Tr}$	$0.391 + 0.264 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
HZ-001	$0.327 + 0.166 \cdot \text{Tr}$	$0.508 + 0.234 \cdot \text{Tr}$	$0.861 + 0.301 \cdot \text{Tr}$
LZ-001	$0.233 + 0.063 \cdot \text{Tr}$	$0.359 + 0.100 \cdot \text{Tr}$	$0.552 + 0.161 \cdot \text{Tr}$
HZ-100	$0.346 + 0.228 \cdot \text{Tr}$	$0.537 + 0.261 \cdot \text{Tr}$	$0.906 + 0.298 \cdot \text{Tr}$
LZ-100	$0.238 + 0.285 \cdot \text{Tr}$	$0.391 + 0.260 \cdot \text{Tr}$	$0.596 + 0.313 \cdot \text{Tr}$
ZH-011	$1.447 + 0.226 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.296 + 0.280 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.933 + 0.324 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-011	$0.877 + 0.221 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.147 + 0.275 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.656 + 0.319 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-110	$1.457 + 0.006 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.313 + 0.051 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.961 + 0.095 \cdot \text{Tr} + 0.092 \cdot \text{C}$
ZL-110	$0.889 + 0.013 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.166 + 0.066 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.687 + 0.116 \cdot \text{Tr} + 0.112 \cdot \text{C}$
ZH-001	$1.151 + 0.228 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.036 + 0.279 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.511 + 0.322 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-001	$0.646 + 0.219 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.748 + 0.275 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.080 + 0.318 \cdot \text{Tr} + 0.106 \cdot \text{C}$
ZH-100	$1.163 + 0.005 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.052 + 0.053 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.539 + 0.094 \cdot \text{Tr} + 0.086 \cdot \text{C}$
ZL-100	$0.656 + 0.016 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.766 + 0.070 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.110 + 0.114 \cdot \text{Tr} + 0.106 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.844 + 0.008 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.126 + 0.055 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.632 + 0.105 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-10100	$1.431 + 0.230 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.300 + 0.265 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.948 + 0.304 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-00110	$0.831 + 0.203 \cdot \text{Tr} + 0.153 \cdot \text{C}$	$1.109 + 0.230 \cdot \text{Tr} + 0.127 \cdot \text{C}$	$1.609 + 0.261 \cdot \text{Tr} + 0.112 \cdot \text{C}$
R-00110	$1.412 + 0.034 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$1.270 + 0.091 \cdot \text{Tr} + 0.100 \cdot \text{C}$	$1.907 + 0.140 \cdot \text{Tr} + 0.092 \cdot \text{C}$
F-10000	$0.623 + 0.010 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.739 + 0.059 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.069 + 0.104 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-10000	$1.147 + 0.229 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.046 + 0.268 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.534 + 0.305 \cdot \text{Tr} + 0.086 \cdot \text{C}$
F-00010	$0.611 + 0.203 \cdot \text{Tr} + 0.151 \cdot \text{C}$	$0.723 + 0.230 \cdot \text{Tr} + 0.124 \cdot \text{C}$	$1.046 + 0.262 \cdot \text{Tr} + 0.106 \cdot \text{C}$
R-00010	$1.127 + 0.035 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$1.016 + 0.092 \cdot \text{Tr} + 0.096 \cdot \text{C}$	$1.493 + 0.139 \cdot \text{Tr} + 0.086 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.111 + 0.123 \cdot \text{C}$	$0.141 - 0.001 \cdot \text{Tr} + 0.102 \cdot \text{C}$	$0.230 + 0.086 \cdot \text{C}$
R-010	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.078 \cdot \text{C}$	$0.330 + 0.068 \cdot \text{C}$
F-000	$0.054 + 0.124 \cdot \text{C}$	$0.051 + 0.103 \cdot \text{C}$	$0.088 + 0.088 \cdot \text{C}$
R-000	$0.213 + 0.003 \cdot \text{Tr} + 0.097 \cdot \text{C}$	$0.141 + 0.079 \cdot \text{C}$	$0.214 + 0.002 \cdot \text{Tr} + 0.069 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.328 + 0.096 \cdot \text{C}$	$0.227 + 0.078 \cdot \text{C}$	$0.334 + 0.068 \cdot \text{C}$
ZL-10	$0.112 + 0.003 \cdot \text{Tr} + 0.123 \cdot \text{C}$	$0.144 + 0.102 \cdot \text{C}$	$0.237 + 0.086 \cdot \text{C}$
ZH-00	$0.215 + 0.097 \cdot \text{C}$	$0.142 + 0.079 \cdot \text{C}$	$0.217 + 0.069 \cdot \text{C}$
ZL-00	$0.055 + 0.124 \cdot \text{C}$	$0.052 + 0.103 \cdot \text{C}$	$0.090 + 0.088 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.110 + 0.123 \cdot \text{C}$	$0.140 + 0.102 \cdot \text{C}$	$0.231 + 0.086 \cdot \text{C}$
R-101	$0.326 + 0.096 \cdot \text{C}$	$0.225 + 0.002 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$0.331 + 0.068 \cdot \text{C}$

F-001	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-001	$0.214 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.215 + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.002^{\circ}\text{Tr} + 0.069^{\circ}\text{C}$
ZL-01	$0.056 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
ZH-11	$0.329 - 0.003^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.335 + 0.068^{\circ}\text{C}$
ZL-11	$0.112 + 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.328 + 0.096^{\circ}\text{C}$	$0.228 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-011	$0.112 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.144 - 0.001^{\circ}\text{Tr} + 0.102^{\circ}\text{C}$	$0.237 + 0.086^{\circ}\text{C}$
ZH-110	$0.328 - 0.001^{\circ}\text{Tr} + 0.096^{\circ}\text{C}$	$0.227 + 0.078^{\circ}\text{C}$	$0.334 + 0.068^{\circ}\text{C}$
ZL-110	$0.113 + 0.123^{\circ}\text{C}$	$0.144 + 0.102^{\circ}\text{C}$	$0.238 - 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
ZH-001	$0.216 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-001	$0.055 + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.091 - 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
ZH-100	$0.216 - 0.003^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.142 + 0.079^{\circ}\text{C}$	$0.217 + 0.069^{\circ}\text{C}$
ZL-100	$0.055 - 0.001^{\circ}\text{Tr} + 0.124^{\circ}\text{C}$	$0.052 + 0.103^{\circ}\text{C}$	$0.090 + 0.088^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.110 + 0.003^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.002^{\circ}\text{Tr} + 0.086^{\circ}\text{C}$
R-10100	$0.326 + 0.096^{\circ}\text{C}$	$0.225 + 0.002^{\circ}\text{Tr} + 0.078^{\circ}\text{C}$	$0.330 + 0.001^{\circ}\text{Tr} + 0.068^{\circ}\text{C}$
F-00110	$0.111 - 0.002^{\circ}\text{Tr} + 0.123^{\circ}\text{C}$	$0.141 + 0.102^{\circ}\text{C}$	$0.230 + 0.086^{\circ}\text{C}$
R-00110	$0.327 + 0.096^{\circ}\text{C}$	$0.225 + 0.078^{\circ}\text{C}$	$0.330 + 0.068^{\circ}\text{C}$
F-10000	$0.054 + 0.124^{\circ}\text{C}$	$0.050 + 0.103^{\circ}\text{C}$	$0.087 + 0.001^{\circ}\text{Tr} + 0.088^{\circ}\text{C}$
R-10000	$0.214 - 0.001^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$
F-00010	$0.054 + 0.124^{\circ}\text{C}$	$0.051 + 0.103^{\circ}\text{C}$	$0.087 + 0.088^{\circ}\text{C}$
R-00010	$0.215 - 0.002^{\circ}\text{Tr} + 0.097^{\circ}\text{C}$	$0.141 + 0.079^{\circ}\text{C}$	$0.214 + 0.069^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.486e-05
typ 1.00 25	2.760e-05	3.970e-05
worst 0.90 125	3.633e-04	3.381e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.130*Tr	0.594 + 0.408*Tr	0.361 + 0.058*Tr	0.460 + 0.194*Tr	0.282 + 0.041*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.204	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	7.855 + 0.050*Tr	9.132 - 0.041*Tr	6.611 - 0.004*Tr	7.631 + 0.008*Tr	5.674	6.541 + 0.023*Tr
ZI toggling	0.472 + 0.584*Tr	0.657 + 1.080*Tr	0.353 + 0.262*Tr	0.504 + 0.509*Tr	0.278 + 0.119*Tr	0.383 + 0.237*Tr

BD4SCARUDQPCH_EXT_CSF_1V8_CL_LIN

Cell Description

BD4SCARUDQPCH_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

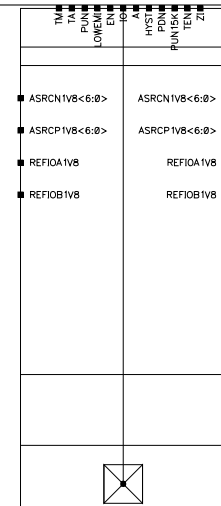
Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCH_EXT_CSF_1V8_FC_INNER

Cell Description

BD4SCARUDQPCH_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCH_EXT_CSF_1V8_FC_LIN

Cell Description

BD4SCARUDQPCH_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

Cell Description

BD4SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCL_EXT_CSF_1V8_CL_LIN

Cell Description

BD4SCARUDQPCL_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

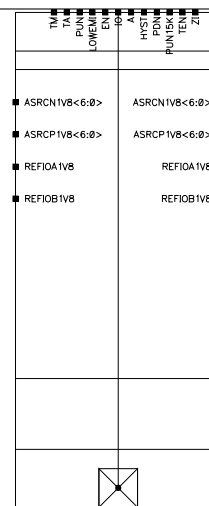
Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCL_EXT_CSF_1V8_FC_INNER

Cell Description

BD4SCARUDQPCL_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCL_EXT_CSF_1V8_FC_LIN

Cell Description

BD4SCARUDQPCL_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

Cell Description

BD4SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

Cell Description

BD4SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	0.099 + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-001	0.184 + 0.049°C	0.119 + 0.040°C	0.194 + 0.002*Tr + 0.035°C
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	0.184 + 0.003*Tr + 0.049°C	0.120 + 0.040°C	0.196 + 0.002*Tr + 0.035°C
ZL-01	0.102 - 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-11	0.227 + 0.049°C	0.148 + 0.040°C	0.280 + 0.002*Tr + 0.035°C
ZL-11	0.135 - 0.001*Tr + 0.061°C	0.141 + 0.051°C	0.222 - 0.002*Tr + 0.043°C
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	0.227 + 0.049°C	0.149 + 0.040°C	0.281 + 0.035°C
ZL-011	0.133 + 0.061°C	0.141 + 0.051°C	0.221 + 0.043°C
ZH-110	0.228 - 0.001*Tr + 0.049°C	0.148 + 0.040°C	0.280 + 0.035°C
ZL-110	0.132 + 0.003*Tr + 0.061°C	0.141 + 0.051°C	0.220 + 0.043°C
ZH-001	0.184 + 0.049°C	0.120 + 0.040°C	0.197 + 0.035°C
ZL-001	0.101 + 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-100	0.185 + 0.049°C	0.120 + 0.040°C	0.197 + 0.002*Tr + 0.035°C
ZL-100	0.102 + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	0.130 + 0.062°C	0.138 + 0.051°C	0.213 + 0.043°C
R-10100	0.226 + 0.049°C	0.147 + 0.040°C	0.276 + 0.035°C
F-00110	0.131 + 0.061°C	0.137 + 0.051°C	0.214 + 0.043°C
R-00110	0.226 + 0.049°C	0.146 + 0.001*Tr + 0.040°C	0.276 + 0.001*Tr + 0.035°C
F-10000	0.098 + 0.002*Tr + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-10000	0.184 + 0.049°C	0.118 + 0.040°C	0.194 + 0.001*Tr + 0.035°C
F-00010	0.097 + 0.062°C	0.074 + 0.051°C	0.115 - 0.001*Tr + 0.044°C
R-00010	0.184 + 0.003*Tr + 0.049°C	0.118 + 0.001*Tr + 0.040°C	0.194 + 0.035°C

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

Cell Description

- The cell has "dont_use" attribute set in the Synopsis STF.
- The cell has "dont_touch" attribute set in the Synopsis STF.

Area(um2) : 3632.000

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

[illegible]

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

Cell Description

- The cell has "dont_use" attribute set in the Synopsis STF.
- The cell has "dont_touch" attribute set in the Synopsis STF.

Area(um2) : 3632.000

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

[illegible]

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

Cell Description

BD4SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	0.099 + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-001	0.184 + 0.049°C	0.119 + 0.040°C	0.194 + 0.002*Tr + 0.035°C
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	0.184 + 0.003*Tr + 0.049°C	0.120 + 0.040°C	0.196 + 0.002*Tr + 0.035°C
ZL-01	0.102 - 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-11	0.227 + 0.049°C	0.148 + 0.040°C	0.280 + 0.002*Tr + 0.035°C
ZL-11	0.135 - 0.001*Tr + 0.061°C	0.141 + 0.051°C	0.222 - 0.002*Tr + 0.043°C
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	0.227 + 0.049°C	0.149 + 0.040°C	0.281 + 0.035°C
ZL-011	0.133 + 0.061°C	0.141 + 0.051°C	0.221 + 0.043°C
ZH-110	0.228 - 0.001*Tr + 0.049°C	0.148 + 0.040°C	0.280 + 0.035°C
ZL-110	0.132 + 0.003*Tr + 0.061°C	0.141 + 0.051°C	0.220 + 0.043°C
ZH-001	0.184 + 0.049°C	0.120 + 0.040°C	0.197 + 0.035°C
ZL-001	0.101 + 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-100	0.185 + 0.049°C	0.120 + 0.040°C	0.197 + 0.002*Tr + 0.035°C
ZL-100	0.102 + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	0.130 + 0.062°C	0.138 + 0.051°C	0.213 + 0.043°C
R-10100	0.226 + 0.049°C	0.147 + 0.040°C	0.276 + 0.035°C
F-00110	0.131 + 0.061°C	0.137 + 0.051°C	0.214 + 0.043°C
R-00110	0.226 + 0.049°C	0.146 + 0.001*Tr + 0.040°C	0.276 + 0.001*Tr + 0.035°C
F-10000	0.098 + 0.002*Tr + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-10000	0.184 + 0.049°C	0.118 + 0.040°C	0.194 + 0.001*Tr + 0.035°C
F-00010	0.097 + 0.062°C	0.074 + 0.051°C	0.115 - 0.001*Tr + 0.044°C
R-00010	0.184 + 0.003*Tr + 0.049°C	0.118 + 0.001*Tr + 0.040°C	0.194 + 0.035°C

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_CL_LIN**Cell Description**

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
 C : Output (capacitive) load
 R : Rising edge
 F : Falling edge

Logical Symbol**Truth Table**

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_INNER

Cell Description

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_INNER

- The cell has "dont_use" attribute set in the Synopsys STF.
- The cell has "dont_touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_LIN**Cell Description**

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
 C : Output (capacitive) load
 R : Rising edge
 F : Falling edge

Logical Symbol**Truth Table**

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	$0.099 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-001	$0.184 + 0.049^{\circ}\text{C}$	$0.119 + 0.040^{\circ}\text{C}$	$0.194 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.196 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-01	$0.102 - 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-11	$0.227 + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-11	$0.135 - 0.001^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.222 - 0.002^{\circ}\text{Tr} + 0.043^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.227 + 0.049^{\circ}\text{C}$	$0.149 + 0.040^{\circ}\text{C}$	$0.281 + 0.035^{\circ}\text{C}$
ZL-011	$0.133 + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.221 + 0.043^{\circ}\text{C}$
ZH-110	$0.228 - 0.001^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.148 + 0.040^{\circ}\text{C}$	$0.280 + 0.035^{\circ}\text{C}$
ZL-110	$0.132 + 0.003^{\circ}\text{Tr} + 0.061^{\circ}\text{C}$	$0.141 + 0.051^{\circ}\text{C}$	$0.220 + 0.043^{\circ}\text{C}$
ZH-001	$0.184 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.035^{\circ}\text{C}$
ZL-001	$0.101 + 0.001^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
ZH-100	$0.185 + 0.049^{\circ}\text{C}$	$0.120 + 0.040^{\circ}\text{C}$	$0.197 + 0.002^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
ZL-100	$0.102 + 0.062^{\circ}\text{C}$	$0.076 + 0.051^{\circ}\text{C}$	$0.120 - 0.002^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.130 + 0.062^{\circ}\text{C}$	$0.138 + 0.051^{\circ}\text{C}$	$0.213 + 0.043^{\circ}\text{C}$
R-10100	$0.226 + 0.049^{\circ}\text{C}$	$0.147 + 0.040^{\circ}\text{C}$	$0.276 + 0.035^{\circ}\text{C}$
F-00110	$0.131 + 0.061^{\circ}\text{C}$	$0.137 + 0.051^{\circ}\text{C}$	$0.214 + 0.043^{\circ}\text{C}$
R-00110	$0.226 + 0.049^{\circ}\text{C}$	$0.146 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.276 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-10000	$0.098 + 0.002^{\circ}\text{Tr} + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 + 0.044^{\circ}\text{C}$
R-10000	$0.184 + 0.049^{\circ}\text{C}$	$0.118 + 0.040^{\circ}\text{C}$	$0.194 + 0.001^{\circ}\text{Tr} + 0.035^{\circ}\text{C}$
F-00010	$0.097 + 0.062^{\circ}\text{C}$	$0.074 + 0.051^{\circ}\text{C}$	$0.115 - 0.001^{\circ}\text{Tr} + 0.044^{\circ}\text{C}$
R-00010	$0.184 + 0.003^{\circ}\text{Tr} + 0.049^{\circ}\text{C}$	$0.118 + 0.001^{\circ}\text{Tr} + 0.040^{\circ}\text{C}$	$0.194 + 0.035^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_OUTER

Cell Description

BD4SCARUDQPCZ_IL_EXT_CSF_1V8_FC_OUTER

- The cell has "dont_use" attribute set in the Synopsys STF.
- The cell has "dont_touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0320
IO Input Cap.	1.4311	1.4296	1.4288
IO Max Load	101.431	101.430	101.429
LOWEMI Input Cap.	0.0263	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0249	0.0247
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0358
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0448	0.0441	0.0439
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.870 + 0.186 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.536 + 0.245 \cdot Tr + 0.057 \cdot C$
R-010	$1.225 + 0.036 \cdot Tr + 0.064 \cdot C$	$1.097 + 0.081 \cdot Tr + 0.049 \cdot C$	$1.746 + 0.126 \cdot Tr + 0.046 \cdot C$
F-000	$0.710 + 0.182 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.216 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.243 \cdot Tr + 0.054 \cdot C$
R-000	$1.061 + 0.034 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.085 \cdot Tr + 0.048 \cdot C$	$1.405 + 0.128 \cdot Tr + 0.044 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.344 + 0.137 \cdot Tr$	$0.573 + 0.197 \cdot Tr$	$1.053 + 0.246 \cdot Tr$
LZ-10	$0.344 + 0.137 \cdot Tr$	$0.536 + 0.195 \cdot Tr$	$0.842 + 0.251 \cdot Tr$
HZ-00	$0.344 + 0.135 \cdot Tr$	$0.574 + 0.191 \cdot Tr$	$1.049 + 0.253 \cdot Tr$
LZ-00	$0.343 + 0.137 \cdot Tr$	$0.535 + 0.196 \cdot Tr$	$0.841 + 0.251 \cdot Tr$
ZH-10	$1.251 + 0.198 \cdot Tr + 0.064 \cdot C$	$1.116 + 0.247 \cdot Tr + 0.049 \cdot C$	$1.772 + 0.278 \cdot Tr + 0.046 \cdot C$
ZL-10	$0.911 + 0.192 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.243 \cdot Tr + 0.065 \cdot C$	$1.576 + 0.280 \cdot Tr + 0.057 \cdot C$
ZH-00	$1.084 + 0.195 \cdot Tr + 0.062 \cdot C$	$0.972 + 0.247 \cdot Tr + 0.048 \cdot C$	$1.427 + 0.281 \cdot Tr + 0.044 \cdot C$
ZL-00	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.063 \cdot C$	$1.159 + 0.280 \cdot Tr + 0.054 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.196 \cdot Tr + 0.132 \cdot C$	$0.420 + 0.217 \cdot Tr + 0.189 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.276 \cdot C$
R-1	$0.322 + 0.191 \cdot Tr + 0.081 \cdot C$	$0.426 + 0.212 \cdot Tr + 0.111 \cdot C$	$0.594 + 0.239 \cdot Tr + 0.219 \cdot C$
F-0	$0.286 + 0.050 \cdot Tr + 0.137 \cdot C$	$0.383 + 0.058 \cdot Tr + 0.192 \cdot C$	$0.551 + 0.074 \cdot Tr + 0.291 \cdot C$
R-0	$0.297 + 0.030 \cdot Tr + 0.079 \cdot C$	$0.396 + 0.047 \cdot Tr + 0.120 \cdot C$	$0.562 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.869 + 0.187 \cdot Tr + 0.078 \cdot C$	$1.073 + 0.216 \cdot Tr + 0.065 \cdot C$	$1.538 + 0.244 \cdot Tr + 0.057 \cdot C$
R-101	$1.224 + 0.037 \cdot Tr + 0.064 \cdot C$	$1.095 + 0.084 \cdot Tr + 0.049 \cdot C$	$1.745 + 0.129 \cdot Tr + 0.046 \cdot C$
F-001	$0.709 + 0.184 \cdot Tr + 0.077 \cdot C$	$0.779 + 0.217 \cdot Tr + 0.063 \cdot C$	$1.134 + 0.245 \cdot Tr + 0.054 \cdot C$
R-001	$1.060 + 0.036 \cdot Tr + 0.062 \cdot C$	$0.954 + 0.086 \cdot Tr + 0.048 \cdot C$	$1.403 + 0.131 \cdot Tr + 0.044 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.343 + 0.137 \cdot Tr$	$0.572 + 0.200 \cdot Tr$	$1.048 + 0.252 \cdot Tr$
LZ-01	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.197 \cdot Tr$	$0.840 + 0.247 \cdot Tr$
HZ-11	$0.343 + 0.139 \cdot Tr$	$0.573 + 0.199 \cdot Tr$	$1.052 + 0.247 \cdot Tr$
LZ-11	$0.343 + 0.138 \cdot Tr$	$0.535 + 0.198 \cdot Tr$	$0.841 + 0.247 \cdot Tr$
ZH-01	$1.083 + 0.198 \cdot Tr + 0.062 \cdot C$	$0.974 + 0.244 \cdot Tr + 0.048 \cdot C$	$1.426 + 0.285 \cdot Tr + 0.044 \cdot C$
ZL-01	$0.740 + 0.192 \cdot Tr + 0.077 \cdot C$	$0.804 + 0.241 \cdot Tr + 0.063 \cdot C$	$1.160 + 0.281 \cdot Tr + 0.054 \cdot C$
ZH-11	$1.251 + 0.197 \cdot Tr + 0.064 \cdot C$	$1.117 + 0.245 \cdot Tr + 0.049 \cdot C$	$1.771 + 0.285 \cdot Tr + 0.046 \cdot C$
ZL-11	$0.911 + 0.193 \cdot Tr + 0.078 \cdot C$	$1.107 + 0.244 \cdot Tr + 0.065 \cdot C$	$1.577 + 0.284 \cdot Tr + 0.057 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.340 + 0.166 \cdot \text{Tr}$	$0.569 + 0.233 \cdot \text{Tr}$	$1.042 + 0.299 \cdot \text{Tr}$
LZ-011	$0.226 + 0.046 \cdot \text{Tr}$	$0.377 + 0.100 \cdot \text{Tr}$	$0.596 + 0.154 \cdot \text{Tr}$
HZ-110	$0.359 + 0.226 \cdot \text{Tr}$	$0.595 + 0.265 \cdot \text{Tr}$	$1.089 + 0.297 \cdot \text{Tr}$
LZ-110	$0.247 + 0.235 \cdot \text{Tr}$	$0.409 + 0.260 \cdot \text{Tr}$	$0.643 + 0.312 \cdot \text{Tr}$
HZ-001	$0.340 + 0.167 \cdot \text{Tr}$	$0.568 + 0.231 \cdot \text{Tr}$	$1.039 + 0.309 \cdot \text{Tr}$
LZ-001	$0.226 + 0.049 \cdot \text{Tr}$	$0.376 + 0.091 \cdot \text{Tr}$	$0.596 + 0.136 \cdot \text{Tr}$
HZ-100	$0.359 + 0.228 \cdot \text{Tr}$	$0.597 + 0.259 \cdot \text{Tr}$	$1.086 + 0.297 \cdot \text{Tr}$
LZ-100	$0.246 + 0.238 \cdot \text{Tr}$	$0.409 + 0.256 \cdot \text{Tr}$	$0.642 + 0.312 \cdot \text{Tr}$
ZH-011	$1.248 + 0.228 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.110 + 0.278 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.759 + 0.319 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-011	$0.907 + 0.222 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.101 + 0.277 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.568 + 0.319 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-110	$1.258 + 0.007 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.126 + 0.052 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.787 + 0.094 \cdot \text{Tr} + 0.046 \cdot \text{C}$
ZL-110	$0.919 + 0.016 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.119 + 0.067 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.598 + 0.115 \cdot \text{Tr} + 0.057 \cdot \text{C}$
ZH-001	$1.079 + 0.227 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$0.966 + 0.280 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.415 + 0.321 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-001	$0.738 + 0.221 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.798 + 0.274 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.151 + 0.318 \cdot \text{Tr} + 0.054 \cdot \text{C}$
ZH-100	$1.091 + 0.005 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.982 + 0.054 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.097 \cdot \text{Tr} + 0.044 \cdot \text{C}$
ZL-100	$0.750 + 0.015 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.817 + 0.067 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.181 + 0.113 \cdot \text{Tr} + 0.054 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.878 + 0.007 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.083 + 0.055 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.550 + 0.100 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-10100	$1.242 + 0.230 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.121 + 0.267 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.782 + 0.305 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-00110	$0.864 + 0.203 \cdot \text{Tr} + 0.078 \cdot \text{C}$	$1.065 + 0.233 \cdot \text{Tr} + 0.065 \cdot \text{C}$	$1.526 + 0.262 \cdot \text{Tr} + 0.057 \cdot \text{C}$
R-00110	$1.220 + 0.038 \cdot \text{Tr} + 0.064 \cdot \text{C}$	$1.092 + 0.089 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$1.740 + 0.140 \cdot \text{Tr} + 0.046 \cdot \text{C}$
F-10000	$0.718 + 0.008 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.788 + 0.057 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.147 + 0.102 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-10000	$1.077 + 0.227 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.979 + 0.268 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.441 + 0.306 \cdot \text{Tr} + 0.044 \cdot \text{C}$
F-00010	$0.704 + 0.201 \cdot \text{Tr} + 0.077 \cdot \text{C}$	$0.771 + 0.232 \cdot \text{Tr} + 0.063 \cdot \text{C}$	$1.123 + 0.263 \cdot \text{Tr} + 0.054 \cdot \text{C}$
R-00010	$1.057 + 0.033 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.949 + 0.092 \cdot \text{Tr} + 0.048 \cdot \text{C}$	$1.399 + 0.140 \cdot \text{Tr} + 0.044 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.130 + 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-010	$0.226 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$
F-000	$0.097 + 0.003 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.074 + 0.051 \cdot \text{C}$	$0.115 + 0.044 \cdot \text{C}$
R-000	$0.183 + 0.002 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.118 + 0.040 \cdot \text{C}$	$0.194 + 0.002 \cdot \text{Tr} + 0.035 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.227 + 0.001 \cdot \text{Tr} + 0.049 \cdot \text{C}$	$0.149 + 0.040 \cdot \text{C}$	$0.280 + 0.035 \cdot \text{C}$
ZL-10	$0.134 - 0.002 \cdot \text{Tr} + 0.061 \cdot \text{C}$	$0.141 + 0.051 \cdot \text{C}$	$0.221 - 0.001 \cdot \text{Tr} + 0.043 \cdot \text{C}$
ZH-00	$0.185 + 0.049 \cdot \text{C}$	$0.120 + 0.040 \cdot \text{C}$	$0.197 + 0.035 \cdot \text{C}$
ZL-00	$0.101 + 0.002 \cdot \text{Tr} + 0.062 \cdot \text{C}$	$0.076 + 0.051 \cdot \text{C}$	$0.120 - 0.001 \cdot \text{Tr} + 0.044 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.101 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.234 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.088 \cdot \text{C}$	$0.010 + 0.146 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.149 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.055 \cdot \text{C}$	$0.006 + 0.090 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.130 + 0.061 \cdot \text{C}$	$0.137 + 0.051 \cdot \text{C}$	$0.214 + 0.043 \cdot \text{C}$
R-101	$0.225 + 0.049 \cdot \text{C}$	$0.147 + 0.040 \cdot \text{C}$	$0.276 + 0.035 \cdot \text{C}$

F-001	0.099 + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-001	0.184 + 0.049°C	0.119 + 0.040°C	0.194 + 0.002*Tr + 0.035°C
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	0.184 + 0.003*Tr + 0.049°C	0.120 + 0.040°C	0.196 + 0.002*Tr + 0.035°C
ZL-01	0.102 - 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-11	0.227 + 0.049°C	0.148 + 0.040°C	0.280 + 0.002*Tr + 0.035°C
ZL-11	0.135 - 0.001*Tr + 0.061°C	0.141 + 0.051°C	0.222 - 0.002*Tr + 0.043°C
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	0.227 + 0.049°C	0.149 + 0.040°C	0.281 + 0.035°C
ZL-011	0.133 + 0.061°C	0.141 + 0.051°C	0.221 + 0.043°C
ZH-110	0.228 - 0.001*Tr + 0.049°C	0.148 + 0.040°C	0.280 + 0.035°C
ZL-110	0.132 + 0.003*Tr + 0.061°C	0.141 + 0.051°C	0.220 + 0.043°C
ZH-001	0.184 + 0.049°C	0.120 + 0.040°C	0.197 + 0.035°C
ZL-001	0.101 + 0.001*Tr + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
ZH-100	0.185 + 0.049°C	0.120 + 0.040°C	0.197 + 0.002*Tr + 0.035°C
ZL-100	0.102 + 0.062°C	0.076 + 0.051°C	0.120 - 0.002*Tr + 0.044°C
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	0.130 + 0.062°C	0.138 + 0.051°C	0.213 + 0.043°C
R-10100	0.226 + 0.049°C	0.147 + 0.040°C	0.276 + 0.035°C
F-00110	0.131 + 0.061°C	0.137 + 0.051°C	0.214 + 0.043°C
R-00110	0.226 + 0.049°C	0.146 + 0.001*Tr + 0.040°C	0.276 + 0.001*Tr + 0.035°C
F-10000	0.098 + 0.002*Tr + 0.062°C	0.074 + 0.051°C	0.115 + 0.044°C
R-10000	0.184 + 0.049°C	0.118 + 0.040°C	0.194 + 0.001*Tr + 0.035°C
F-00010	0.097 + 0.062°C	0.074 + 0.051°C	0.115 - 0.001*Tr + 0.044°C
R-00010	0.184 + 0.003*Tr + 0.049°C	0.118 + 0.001*Tr + 0.040°C	0.194 + 0.035°C

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.777e-05
typ 1.00 25	2.760e-05	4.567e-05
worst 0.90 125	3.633e-04	3.998e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.473 + 0.131*Tr	0.593 + 0.409*Tr	0.361 + 0.059*Tr	0.459 + 0.195*Tr	0.282 + 0.040*Tr	0.360 + 0.131*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.233 + 0.030*Tr	9.512 + 0.024*Tr	7.104 - 0.007*Tr	8.186 - 0.013*Tr	6.301 + 0.022*Tr	7.379 + 0.036*Tr
ZI toggling	0.472 + 0.585*Tr	0.660 + 1.081*Tr	0.354 + 0.261*Tr	0.511 + 0.508*Tr	0.279 + 0.119*Tr	0.388 + 0.235*Tr

BD6SCARUDQPCH_EXT_CSF_1V8_CL_LIN

Cell Description

BD6SCARUDQPCH_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041^{\circ}C$	$0.087 + 0.036^{\circ}C$	$0.139 + 0.003 \cdot Tr + 0.031^{\circ}C$
R-001	$0.160 + 0.033^{\circ}C$	$0.104 - 0.003 \cdot Tr + 0.029^{\circ}C$	$0.182 + 0.027^{\circ}C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033^{\circ}C$	$0.105 + 0.029^{\circ}C$	$0.184 + 0.002 \cdot Tr + 0.027^{\circ}C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.089 + 0.002 \cdot Tr + 0.036^{\circ}C$	$0.147 + 0.002 \cdot Tr + 0.031^{\circ}C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033^{\circ}C$	$0.169 + 0.029^{\circ}C$	$0.306 + 0.001 \cdot Tr + 0.026^{\circ}C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.166 + 0.035^{\circ}C$	$0.269 + 0.031^{\circ}C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033^{\circ}C$	$0.170 - 0.002 \cdot Tr + 0.029^{\circ}C$	$0.305 + 0.005 \cdot Tr + 0.026^{\circ}C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041^{\circ}C$	$0.166 - 0.001 \cdot Tr + 0.035^{\circ}C$	$0.269 + 0.031^{\circ}C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033^{\circ}C$	$0.169 + 0.029^{\circ}C$	$0.306 + 0.026^{\circ}C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.166 + 0.035^{\circ}C$	$0.269 + 0.001 \cdot Tr + 0.031^{\circ}C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033^{\circ}C$	$0.104 + 0.004 \cdot Tr + 0.029^{\circ}C$	$0.185 + 0.027^{\circ}C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041^{\circ}C$	$0.089 + 0.036^{\circ}C$	$0.148 - 0.002 \cdot Tr + 0.031^{\circ}C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033^{\circ}C$	$0.106 - 0.004 \cdot Tr + 0.029^{\circ}C$	$0.185 + 0.027^{\circ}C$
ZL-100	$0.116 + 0.041^{\circ}C$	$0.089 + 0.001 \cdot Tr + 0.036^{\circ}C$	$0.148 - 0.002 \cdot Tr + 0.031^{\circ}C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041^{\circ}C$	$0.162 - 0.002 \cdot Tr + 0.035^{\circ}C$	$0.260 + 0.031^{\circ}C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033^{\circ}C$	$0.169 - 0.001 \cdot Tr + 0.029^{\circ}C$	$0.302 + 0.002 \cdot Tr + 0.027^{\circ}C$
F-00110	$0.156 + 0.041^{\circ}C$	$0.161 + 0.035^{\circ}C$	$0.260 + 0.031^{\circ}C$
R-00110	$0.194 + 0.033^{\circ}C$	$0.169 - 0.003 \cdot Tr + 0.029^{\circ}C$	$0.301 + 0.002 \cdot Tr + 0.027^{\circ}C$
F-10000	$0.113 + 0.041^{\circ}C$	$0.087 + 0.002 \cdot Tr + 0.036^{\circ}C$	$0.140 + 0.031^{\circ}C$
R-10000	$0.160 + 0.033^{\circ}C$	$0.104 + 0.029^{\circ}C$	$0.182 + 0.001 \cdot Tr + 0.027^{\circ}C$
F-00010	$0.112 + 0.041^{\circ}C$	$0.086 + 0.036^{\circ}C$	$0.140 + 0.031^{\circ}C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033^{\circ}C$	$0.103 + 0.029^{\circ}C$	$0.182 + 0.027^{\circ}C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCH_EXT_CSF_1V8_FC_INNER

Cell Description

BD6SCARUDQPCH_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041^{\circ}C$	$0.087 + 0.036^{\circ}C$	$0.139 + 0.003 \cdot Tr + 0.031^{\circ}C$
R-001	$0.160 + 0.033^{\circ}C$	$0.104 - 0.003 \cdot Tr + 0.029^{\circ}C$	$0.182 + 0.027^{\circ}C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033^{\circ}C$	$0.105 + 0.029^{\circ}C$	$0.184 + 0.002 \cdot Tr + 0.027^{\circ}C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.089 + 0.002 \cdot Tr + 0.036^{\circ}C$	$0.147 + 0.002 \cdot Tr + 0.031^{\circ}C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033^{\circ}C$	$0.169 + 0.029^{\circ}C$	$0.306 + 0.001 \cdot Tr + 0.026^{\circ}C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.166 + 0.035^{\circ}C$	$0.269 + 0.031^{\circ}C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033^{\circ}C$	$0.170 - 0.002 \cdot Tr + 0.029^{\circ}C$	$0.305 + 0.005 \cdot Tr + 0.026^{\circ}C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041^{\circ}C$	$0.166 - 0.001 \cdot Tr + 0.035^{\circ}C$	$0.269 + 0.031^{\circ}C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033^{\circ}C$	$0.169 + 0.029^{\circ}C$	$0.306 + 0.026^{\circ}C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041^{\circ}C$	$0.166 + 0.035^{\circ}C$	$0.269 + 0.001 \cdot Tr + 0.031^{\circ}C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033^{\circ}C$	$0.104 + 0.004 \cdot Tr + 0.029^{\circ}C$	$0.185 + 0.027^{\circ}C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041^{\circ}C$	$0.089 + 0.036^{\circ}C$	$0.148 - 0.002 \cdot Tr + 0.031^{\circ}C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033^{\circ}C$	$0.106 - 0.004 \cdot Tr + 0.029^{\circ}C$	$0.185 + 0.027^{\circ}C$
ZL-100	$0.116 + 0.041^{\circ}C$	$0.089 + 0.001 \cdot Tr + 0.036^{\circ}C$	$0.148 - 0.002 \cdot Tr + 0.031^{\circ}C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041^{\circ}C$	$0.162 - 0.002 \cdot Tr + 0.035^{\circ}C$	$0.260 + 0.031^{\circ}C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033^{\circ}C$	$0.169 - 0.001 \cdot Tr + 0.029^{\circ}C$	$0.302 + 0.002 \cdot Tr + 0.027^{\circ}C$
F-00110	$0.156 + 0.041^{\circ}C$	$0.161 + 0.035^{\circ}C$	$0.260 + 0.031^{\circ}C$
R-00110	$0.194 + 0.033^{\circ}C$	$0.169 - 0.003 \cdot Tr + 0.029^{\circ}C$	$0.301 + 0.002 \cdot Tr + 0.027^{\circ}C$
F-10000	$0.113 + 0.041^{\circ}C$	$0.087 + 0.002 \cdot Tr + 0.036^{\circ}C$	$0.140 + 0.031^{\circ}C$
R-10000	$0.160 + 0.033^{\circ}C$	$0.104 + 0.029^{\circ}C$	$0.182 + 0.001 \cdot Tr + 0.027^{\circ}C$
F-00010	$0.112 + 0.041^{\circ}C$	$0.086 + 0.036^{\circ}C$	$0.140 + 0.031^{\circ}C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033^{\circ}C$	$0.103 + 0.029^{\circ}C$	$0.182 + 0.027^{\circ}C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCH_EXT_CSF_1V8_FC_LIN

Cell Description

BD6SCARUDQPCH_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

Cell Description

BD6SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

Cell Description

- The cell has "dont_use" attribute set in the Synopsis STF.
- The cell has "dont_touch" attribute set in the Synopsis STF.

Area(um2) : 4252.000

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

[illegible]

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCL_EXT_CSF_1V8_FC_INNER

Cell Description

BD6SCARUDQPCL_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCL_EXT_CSF_1V8_FC_LIN

Cell Description

BD6SCARUDQPCL_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

Cell Description

BD6SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

Cell Description

BD6SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot T_r + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot T_r + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot T_r + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot T_r + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot T_r + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot T_r + 0.041 \cdot C$	$0.089 + 0.002 \cdot T_r + 0.036 \cdot C$	$0.147 + 0.002 \cdot T_r + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot T_r + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot T_r + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot T_r + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot T_r + 0.033 \cdot C$	$0.170 - 0.002 \cdot T_r + 0.029 \cdot C$	$0.305 + 0.005 \cdot T_r + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot T_r + 0.041 \cdot C$	$0.166 - 0.001 \cdot T_r + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot T_r + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot T_r + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot T_r + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot T_r + 0.033 \cdot C$	$0.104 + 0.004 \cdot T_r + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot T_r + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot T_r + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot T_r + 0.033 \cdot C$	$0.106 - 0.004 \cdot T_r + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot T_r + 0.036 \cdot C$	$0.148 - 0.002 \cdot T_r + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot T_r + 0.041 \cdot C$	$0.162 - 0.002 \cdot T_r + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot T_r + 0.033 \cdot C$	$0.169 - 0.001 \cdot T_r + 0.029 \cdot C$	$0.302 + 0.002 \cdot T_r + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot T_r + 0.029 \cdot C$	$0.301 + 0.002 \cdot T_r + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot T_r + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot T_r + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot T_r + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

Cell Description

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

Cell Description

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

Cell Description

BD6SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0374	0.0364	0.0356
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0328	0.0325	0.0322
HYST Input Cap.	0.0325	0.0322	0.0319
IO Input Cap.	1.4803	1.4778	1.4765
IO Max Load	201.480	201.478	201.476
LOWEMI Input Cap.	0.0265	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0249	0.0246
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0377	0.0367	0.0359
TEN Input Cap.	0.0314	0.0311	0.0308
TM Input Cap.	0.0447	0.0440	0.0438
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.010 + 0.181 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.218 \cdot Tr + 0.045 \cdot C$	$1.767 + 0.245 \cdot Tr + 0.041 \cdot C$
R-010	$1.167 + 0.040 \cdot Tr + 0.041 \cdot C$	$1.192 + 0.078 \cdot Tr + 0.035 \cdot C$	$1.869 + 0.124 \cdot Tr + 0.034 \cdot C$
F-000	$0.798 + 0.182 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.216 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.243 \cdot Tr + 0.039 \cdot C$
R-000	$1.022 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.907 + 0.081 \cdot Tr + 0.034 \cdot C$	$1.377 + 0.121 \cdot Tr + 0.032 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.355 + 0.138 \cdot Tr$	$0.604 + 0.194 \cdot Tr$	$1.134 + 0.260 \cdot Tr$
LZ-10	$0.348 + 0.137 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.251 \cdot Tr$
HZ-00	$0.355 + 0.138 \cdot Tr$	$0.605 + 0.196 \cdot Tr$	$1.132 + 0.262 \cdot Tr$
LZ-00	$0.348 + 0.136 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.250 \cdot Tr$
ZH-10	$1.190 + 0.198 \cdot Tr + 0.041 \cdot C$	$1.210 + 0.248 \cdot Tr + 0.035 \cdot C$	$1.892 + 0.282 \cdot Tr + 0.034 \cdot C$
ZL-10	$1.051 + 0.193 \cdot Tr + 0.052 \cdot C$	$1.241 + 0.247 \cdot Tr + 0.045 \cdot C$	$1.808 + 0.282 \cdot Tr + 0.041 \cdot C$
ZH-00	$1.040 + 0.197 \cdot Tr + 0.041 \cdot C$	$0.921 + 0.251 \cdot Tr + 0.034 \cdot C$	$1.395 + 0.283 \cdot Tr + 0.032 \cdot C$
ZL-00	$0.830 + 0.192 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.241 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.278 \cdot Tr + 0.039 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.313 + 0.197 \cdot Tr + 0.128 \cdot C$	$0.422 + 0.217 \cdot Tr + 0.173 \cdot C$	$0.599 + 0.242 \cdot Tr + 0.313 \cdot C$
R-1	$0.324 + 0.191 \cdot Tr + 0.065 \cdot C$	$0.426 + 0.213 \cdot Tr + 0.119 \cdot C$	$0.595 + 0.240 \cdot Tr + 0.224 \cdot C$
F-0	$0.287 + 0.050 \cdot Tr + 0.134 \cdot C$	$0.384 + 0.059 \cdot Tr + 0.191 \cdot C$	$0.552 + 0.075 \cdot Tr + 0.291 \cdot C$
R-0	$0.299 + 0.030 \cdot Tr + 0.078 \cdot C$	$0.397 + 0.047 \cdot Tr + 0.119 \cdot C$	$0.565 + 0.071 \cdot Tr + 0.195 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.010 + 0.184 \cdot Tr + 0.052 \cdot C$	$1.207 + 0.219 \cdot Tr + 0.045 \cdot C$	$1.768 + 0.246 \cdot Tr + 0.041 \cdot C$
R-101	$1.168 + 0.035 \cdot Tr + 0.041 \cdot C$	$1.191 + 0.082 \cdot Tr + 0.035 \cdot C$	$1.867 + 0.128 \cdot Tr + 0.034 \cdot C$
F-001	$0.798 + 0.183 \cdot Tr + 0.051 \cdot C$	$0.858 + 0.218 \cdot Tr + 0.043 \cdot C$	$1.275 + 0.247 \cdot Tr + 0.039 \cdot C$
R-001	$1.020 + 0.035 \cdot Tr + 0.041 \cdot C$	$0.906 + 0.082 \cdot Tr + 0.034 \cdot C$	$1.374 + 0.129 \cdot Tr + 0.032 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.130 + 0.259 \cdot Tr$
LZ-01	$0.347 + 0.137 \cdot Tr$	$0.549 + 0.195 \cdot Tr$	$0.878 + 0.247 \cdot Tr$
HZ-11	$0.355 + 0.139 \cdot Tr$	$0.604 + 0.196 \cdot Tr$	$1.133 + 0.254 \cdot Tr$
LZ-11	$0.348 + 0.138 \cdot Tr$	$0.550 + 0.196 \cdot Tr$	$0.879 + 0.247 \cdot Tr$
ZH-01	$1.042 + 0.195 \cdot Tr + 0.041 \cdot C$	$0.923 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.396 + 0.284 \cdot Tr + 0.032 \cdot C$
ZL-01	$0.829 + 0.193 \cdot Tr + 0.051 \cdot C$	$0.884 + 0.244 \cdot Tr + 0.043 \cdot C$	$1.298 + 0.282 \cdot Tr + 0.039 \cdot C$
ZH-11	$1.190 + 0.200 \cdot Tr + 0.041 \cdot C$	$1.211 + 0.246 \cdot Tr + 0.035 \cdot C$	$1.893 + 0.281 \cdot Tr + 0.034 \cdot C$
ZL-11	$1.051 + 0.197 \cdot Tr + 0.052 \cdot C$	$1.242 + 0.243 \cdot Tr + 0.045 \cdot C$	$1.809 + 0.282 \cdot Tr + 0.041 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.352 + 0.167 \cdot \text{Tr}$	$0.598 + 0.238 \cdot \text{Tr}$	$1.121 + 0.312 \cdot \text{Tr}$
LZ-011	$0.230 + 0.046 \cdot \text{Tr}$	$0.392 + 0.095 \cdot \text{Tr}$	$0.633 + 0.147 \cdot \text{Tr}$
HZ-110	$0.370 + 0.228 \cdot \text{Tr}$	$0.630 + 0.258 \cdot \text{Tr}$	$1.171 + 0.288 \cdot \text{Tr}$
LZ-110	$0.250 + 0.236 \cdot \text{Tr}$	$0.423 + 0.261 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
HZ-001	$0.352 + 0.166 \cdot \text{Tr}$	$0.599 + 0.233 \cdot \text{Tr}$	$1.122 + 0.309 \cdot \text{Tr}$
LZ-001	$0.231 + 0.046 \cdot \text{Tr}$	$0.391 + 0.081 \cdot \text{Tr}$	$0.633 + 0.113 \cdot \text{Tr}$
HZ-100	$0.370 + 0.229 \cdot \text{Tr}$	$0.628 + 0.260 \cdot \text{Tr}$	$1.174 + 0.296 \cdot \text{Tr}$
LZ-100	$0.250 + 0.239 \cdot \text{Tr}$	$0.423 + 0.259 \cdot \text{Tr}$	$0.680 + 0.313 \cdot \text{Tr}$
ZH-011	$1.187 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.204 + 0.278 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.879 + 0.325 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-011	$1.049 + 0.222 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.236 + 0.279 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.798 + 0.321 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-110	$1.198 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.221 + 0.051 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.908 + 0.093 \cdot \text{Tr} + 0.034 \cdot \text{C}$
ZL-110	$1.060 + 0.016 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.256 + 0.064 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.830 + 0.113 \cdot \text{Tr} + 0.041 \cdot \text{C}$
ZH-001	$1.037 + 0.227 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.914 + 0.280 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.384 + 0.320 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-001	$0.827 + 0.219 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.878 + 0.274 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.290 + 0.317 \cdot \text{Tr} + 0.039 \cdot \text{C}$
ZH-100	$1.048 + 0.004 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.051 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.410 + 0.094 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZL-100	$0.839 + 0.012 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.896 + 0.068 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.320 + 0.111 \cdot \text{Tr} + 0.039 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.017 + 0.006 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.217 + 0.056 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.782 + 0.101 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-10100	$1.185 + 0.229 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.216 + 0.265 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.903 + 0.305 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-00110	$1.005 + 0.199 \cdot \text{Tr} + 0.052 \cdot \text{C}$	$1.200 + 0.233 \cdot \text{Tr} + 0.045 \cdot \text{C}$	$1.757 + 0.263 \cdot \text{Tr} + 0.041 \cdot \text{C}$
R-00110	$1.165 + 0.035 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.187 + 0.090 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$1.861 + 0.140 \cdot \text{Tr} + 0.034 \cdot \text{C}$
F-10000	$0.806 + 0.003 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.867 + 0.059 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.289 + 0.102 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-10000	$1.037 + 0.228 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.931 + 0.266 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.411 + 0.306 \cdot \text{Tr} + 0.032 \cdot \text{C}$
F-00010	$0.793 + 0.198 \cdot \text{Tr} + 0.051 \cdot \text{C}$	$0.849 + 0.235 \cdot \text{Tr} + 0.043 \cdot \text{C}$	$1.264 + 0.262 \cdot \text{Tr} + 0.039 \cdot \text{C}$
R-00010	$1.018 + 0.033 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.901 + 0.090 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.370 + 0.136 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.156 + 0.041 \cdot \text{C}$	$0.161 + 0.035 \cdot \text{C}$	$0.259 + 0.003 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-010	$0.191 + 0.004 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.169 - 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.302 + 0.026 \cdot \text{C}$
F-000	$0.112 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.087 - 0.003 \cdot \text{Tr} + 0.036 \cdot \text{C}$	$0.140 + 0.031 \cdot \text{C}$
R-000	$0.162 + 0.033 \cdot \text{C}$	$0.104 + 0.029 \cdot \text{C}$	$0.182 + 0.027 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.192 + 0.003 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.170 + 0.029 \cdot \text{C}$	$0.306 + 0.001 \cdot \text{Tr} + 0.026 \cdot \text{C}$
ZL-10	$0.158 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.166 - 0.001 \cdot \text{Tr} + 0.035 \cdot \text{C}$	$0.270 + 0.031 \cdot \text{C}$
ZH-00	$0.161 + 0.005 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.104 + 0.006 \cdot \text{Tr} + 0.029 \cdot \text{C}$	$0.185 + 0.001 \cdot \text{Tr} + 0.027 \cdot \text{C}$
ZL-00	$0.116 + 0.002 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$0.089 + 0.036 \cdot \text{C}$	$0.148 - 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.005 + 0.102 \cdot \text{C}$	$0.007 + 0.149 \cdot \text{C}$	$0.011 + 0.233 \cdot \text{C}$
R-1	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
F-0	$0.005 + 0.101 \cdot \text{C}$	$0.008 + 0.148 \cdot \text{C}$	$0.011 + 0.231 \cdot \text{C}$
R-0	$0.004 + 0.056 \cdot \text{C}$	$0.006 + 0.089 \cdot \text{C}$	$0.010 + 0.147 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.155 + 0.041 \cdot \text{C}$	$0.162 + 0.035 \cdot \text{C}$	$0.260 + 0.002 \cdot \text{Tr} + 0.031 \cdot \text{C}$
R-101	$0.195 - 0.008 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$0.168 + 0.029 \cdot \text{C}$	$0.302 + 0.027 \cdot \text{C}$

F-001	$0.114 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.087 + 0.036 \cdot C$	$0.139 + 0.003 \cdot Tr + 0.031 \cdot C$
R-001	$0.160 + 0.033 \cdot C$	$0.104 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.162 - 0.001 \cdot Tr + 0.033 \cdot C$	$0.105 + 0.029 \cdot C$	$0.184 + 0.002 \cdot Tr + 0.027 \cdot C$
ZL-01	$0.116 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.147 + 0.002 \cdot Tr + 0.031 \cdot C$
ZH-11	$0.193 + 0.007 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.001 \cdot Tr + 0.026 \cdot C$
ZL-11	$0.158 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.196 - 0.006 \cdot Tr + 0.033 \cdot C$	$0.170 - 0.002 \cdot Tr + 0.029 \cdot C$	$0.305 + 0.005 \cdot Tr + 0.026 \cdot C$
ZL-011	$0.158 + 0.003 \cdot Tr + 0.041 \cdot C$	$0.166 - 0.001 \cdot Tr + 0.035 \cdot C$	$0.269 + 0.031 \cdot C$
ZH-110	$0.196 - 0.008 \cdot Tr + 0.033 \cdot C$	$0.169 + 0.029 \cdot C$	$0.306 + 0.026 \cdot C$
ZL-110	$0.159 + 0.001 \cdot Tr + 0.041 \cdot C$	$0.166 + 0.035 \cdot C$	$0.269 + 0.001 \cdot Tr + 0.031 \cdot C$
ZH-001	$0.161 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.104 + 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-001	$0.116 - 0.002 \cdot Tr + 0.041 \cdot C$	$0.089 + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
ZH-100	$0.162 + 0.003 \cdot Tr + 0.033 \cdot C$	$0.106 - 0.004 \cdot Tr + 0.029 \cdot C$	$0.185 + 0.027 \cdot C$
ZL-100	$0.116 + 0.041 \cdot C$	$0.089 + 0.001 \cdot Tr + 0.036 \cdot C$	$0.148 - 0.002 \cdot Tr + 0.031 \cdot C$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.153 + 0.004 \cdot Tr + 0.041 \cdot C$	$0.162 - 0.002 \cdot Tr + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-10100	$0.194 - 0.003 \cdot Tr + 0.033 \cdot C$	$0.169 - 0.001 \cdot Tr + 0.029 \cdot C$	$0.302 + 0.002 \cdot Tr + 0.027 \cdot C$
F-00110	$0.156 + 0.041 \cdot C$	$0.161 + 0.035 \cdot C$	$0.260 + 0.031 \cdot C$
R-00110	$0.194 + 0.033 \cdot C$	$0.169 - 0.003 \cdot Tr + 0.029 \cdot C$	$0.301 + 0.002 \cdot Tr + 0.027 \cdot C$
F-10000	$0.113 + 0.041 \cdot C$	$0.087 + 0.002 \cdot Tr + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-10000	$0.160 + 0.033 \cdot C$	$0.104 + 0.029 \cdot C$	$0.182 + 0.001 \cdot Tr + 0.027 \cdot C$
F-00010	$0.112 + 0.041 \cdot C$	$0.086 + 0.036 \cdot C$	$0.140 + 0.031 \cdot C$
R-00010	$0.160 + 0.005 \cdot Tr + 0.033 \cdot C$	$0.103 + 0.029 \cdot C$	$0.182 + 0.027 \cdot C$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	4.990e-05
typ 1.00 25	2.760e-05	4.967e-05
worst 0.90 125	3.633e-04	4.413e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.472 + 0.130*Tr	0.592 + 0.408*Tr	0.361 + 0.058*Tr	0.459 + 0.194*Tr	0.282 + 0.040*Tr	0.359 + 0.130*Tr
ZI toggling	0.271	0.275 + 0.006*Tr	0.205	0.206 + 0.003*Tr	0.158	0.159 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	8.597 - 0.015*Tr	9.946 - 0.022*Tr	7.512 - 0.006*Tr	8.645 - 0.011*Tr	6.755 + 0.009*Tr	8.032 - 0.006*Tr
ZI toggling	0.472 + 0.586*Tr	0.655 + 1.082*Tr	0.355 + 0.261*Tr	0.509 + 0.509*Tr	0.279 + 0.120*Tr	0.387 + 0.236*Tr

BD8SCARUDQPCH_EXT_CSF_1V8_CL_LIN

Cell Description

BD8SCARUDQPCH_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCH_EXT_CSF_1V8_FC_INNER

Cell Description

BD8SCARUDQPCH_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.097 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.681 + 0.242 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-010	$1.365 + 0.037 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.080 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.843 + 0.127 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-000	$0.771 + 0.182 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.217 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-000	$0.953 + 0.036 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.865 + 0.087 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.321 + 0.128 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot \text{Tr}$	$0.650 + 0.200 \cdot \text{Tr}$	$1.270 + 0.259 \cdot \text{Tr}$
LZ-10	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.194 \cdot \text{Tr}$	$0.928 + 0.250 \cdot \text{Tr}$
HZ-00	$0.367 + 0.136 \cdot \text{Tr}$	$0.654 + 0.194 \cdot \text{Tr}$	$1.273 + 0.250 \cdot \text{Tr}$
LZ-00	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.928 + 0.249 \cdot \text{Tr}$
ZH-10	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.261 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.863 + 0.280 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-10	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.126 + 0.245 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.702 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-00	$0.967 + 0.201 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.879 + 0.248 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.337 + 0.282 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-00	$0.797 + 0.192 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.803 + 0.245 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.277 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.416 + 0.217 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.591 + 0.242 \cdot \text{Tr} + 0.297 \cdot \text{C}$
R-1	$0.321 + 0.192 \cdot \text{Tr} + 0.075 \cdot \text{C}$	$0.422 + 0.212 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$0.592 + 0.239 \cdot \text{Tr} + 0.197 \cdot \text{C}$
F-0	$0.283 + 0.050 \cdot \text{Tr} + 0.139 \cdot \text{C}$	$0.379 + 0.058 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.545 + 0.074 \cdot \text{Tr} + 0.300 \cdot \text{C}$
R-0	$0.297 + 0.029 \cdot \text{Tr} + 0.083 \cdot \text{C}$	$0.393 + 0.046 \cdot \text{Tr} + 0.128 \cdot \text{C}$	$0.559 + 0.071 \cdot \text{Tr} + 0.206 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.098 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.682 + 0.244 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-101	$1.364 + 0.038 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.243 + 0.085 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.841 + 0.131 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-001	$0.770 + 0.185 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.219 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-001	$0.952 + 0.038 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.864 + 0.086 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.319 + 0.131 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot \text{Tr}$	$0.654 + 0.193 \cdot \text{Tr}$	$1.271 + 0.254 \cdot \text{Tr}$
LZ-01	$0.350 + 0.137 \cdot \text{Tr}$	$0.567 + 0.195 \cdot \text{Tr}$	$0.926 + 0.253 \cdot \text{Tr}$
HZ-11	$0.368 + 0.137 \cdot \text{Tr}$	$0.650 + 0.201 \cdot \text{Tr}$	$1.267 + 0.261 \cdot \text{Tr}$
LZ-11	$0.350 + 0.138 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.926 + 0.252 \cdot \text{Tr}$
ZH-01	$0.970 + 0.197 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.880 + 0.242 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.338 + 0.281 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-01	$0.798 + 0.190 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.804 + 0.243 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.246 + 0.279 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-11	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.262 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.864 + 0.281 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-11	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.127 + 0.243 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.704 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCH_EXT_CSF_1V8_FC_LIN

Cell Description

BD8SCARUDQPCH_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

Cell Description

BD8SCARUDQPCH_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.097 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.681 + 0.242 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-010	$1.365 + 0.037 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.080 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.843 + 0.127 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-000	$0.771 + 0.182 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.217 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-000	$0.953 + 0.036 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.865 + 0.087 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.321 + 0.128 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot \text{Tr}$	$0.650 + 0.200 \cdot \text{Tr}$	$1.270 + 0.259 \cdot \text{Tr}$
LZ-10	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.194 \cdot \text{Tr}$	$0.928 + 0.250 \cdot \text{Tr}$
HZ-00	$0.367 + 0.136 \cdot \text{Tr}$	$0.654 + 0.194 \cdot \text{Tr}$	$1.273 + 0.250 \cdot \text{Tr}$
LZ-00	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.928 + 0.249 \cdot \text{Tr}$
ZH-10	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.261 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.863 + 0.280 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-10	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.126 + 0.245 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.702 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-00	$0.967 + 0.201 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.879 + 0.248 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.337 + 0.282 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-00	$0.797 + 0.192 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.803 + 0.245 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.277 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.416 + 0.217 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.591 + 0.242 \cdot \text{Tr} + 0.297 \cdot \text{C}$
R-1	$0.321 + 0.192 \cdot \text{Tr} + 0.075 \cdot \text{C}$	$0.422 + 0.212 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$0.592 + 0.239 \cdot \text{Tr} + 0.197 \cdot \text{C}$
F-0	$0.283 + 0.050 \cdot \text{Tr} + 0.139 \cdot \text{C}$	$0.379 + 0.058 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.545 + 0.074 \cdot \text{Tr} + 0.300 \cdot \text{C}$
R-0	$0.297 + 0.029 \cdot \text{Tr} + 0.083 \cdot \text{C}$	$0.393 + 0.046 \cdot \text{Tr} + 0.128 \cdot \text{C}$	$0.559 + 0.071 \cdot \text{Tr} + 0.206 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.098 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.682 + 0.244 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-101	$1.364 + 0.038 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.243 + 0.085 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.841 + 0.131 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-001	$0.770 + 0.185 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.219 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-001	$0.952 + 0.038 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.864 + 0.086 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.319 + 0.131 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot \text{Tr}$	$0.654 + 0.193 \cdot \text{Tr}$	$1.271 + 0.254 \cdot \text{Tr}$
LZ-01	$0.350 + 0.137 \cdot \text{Tr}$	$0.567 + 0.195 \cdot \text{Tr}$	$0.926 + 0.253 \cdot \text{Tr}$
HZ-11	$0.368 + 0.137 \cdot \text{Tr}$	$0.650 + 0.201 \cdot \text{Tr}$	$1.267 + 0.261 \cdot \text{Tr}$
LZ-11	$0.350 + 0.138 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.926 + 0.252 \cdot \text{Tr}$
ZH-01	$0.970 + 0.197 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.880 + 0.242 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.338 + 0.281 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-01	$0.798 + 0.190 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.804 + 0.243 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.246 + 0.279 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-11	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.262 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.864 + 0.281 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-11	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.127 + 0.243 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.704 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCL_EXT_CSF_1V8_CL_LIN

Cell Description

BD8SCARUDQPCL_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

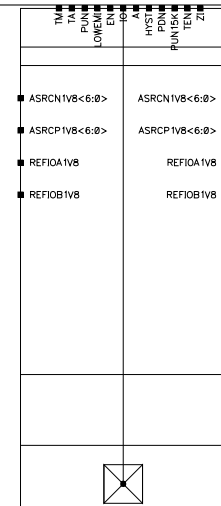
Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCL_EXT_CSF_1V8_FC_INNER

Cell Description

BD8SCARUDQPCL_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCL_EXT_CSF_1V8_FC_LIN

Cell Description

BD8SCARUDQPCL_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

Cell Description

BD8SCARUDQPCL_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

Cell Description

BD8SCARUDQPCZ_EXT_CSF_1V8_CL_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 4252.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

Cell Description

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_INNER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.097 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.681 + 0.242 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-010	$1.365 + 0.037 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.080 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.843 + 0.127 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-000	$0.771 + 0.182 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.217 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-000	$0.953 + 0.036 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.865 + 0.087 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.321 + 0.128 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot \text{Tr}$	$0.650 + 0.200 \cdot \text{Tr}$	$1.270 + 0.259 \cdot \text{Tr}$
LZ-10	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.194 \cdot \text{Tr}$	$0.928 + 0.250 \cdot \text{Tr}$
HZ-00	$0.367 + 0.136 \cdot \text{Tr}$	$0.654 + 0.194 \cdot \text{Tr}$	$1.273 + 0.250 \cdot \text{Tr}$
LZ-00	$0.351 + 0.137 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.928 + 0.249 \cdot \text{Tr}$
ZH-10	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.261 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.863 + 0.280 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-10	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.126 + 0.245 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.702 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-00	$0.967 + 0.201 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.879 + 0.248 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.337 + 0.282 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-00	$0.797 + 0.192 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.803 + 0.245 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.245 + 0.277 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot \text{Tr} + 0.149 \cdot \text{C}$	$0.416 + 0.217 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.591 + 0.242 \cdot \text{Tr} + 0.297 \cdot \text{C}$
R-1	$0.321 + 0.192 \cdot \text{Tr} + 0.075 \cdot \text{C}$	$0.422 + 0.212 \cdot \text{Tr} + 0.130 \cdot \text{C}$	$0.592 + 0.239 \cdot \text{Tr} + 0.197 \cdot \text{C}$
F-0	$0.283 + 0.050 \cdot \text{Tr} + 0.139 \cdot \text{C}$	$0.379 + 0.058 \cdot \text{Tr} + 0.198 \cdot \text{C}$	$0.545 + 0.074 \cdot \text{Tr} + 0.300 \cdot \text{C}$
R-0	$0.297 + 0.029 \cdot \text{Tr} + 0.083 \cdot \text{C}$	$0.393 + 0.046 \cdot \text{Tr} + 0.128 \cdot \text{C}$	$0.559 + 0.071 \cdot \text{Tr} + 0.206 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.098 + 0.218 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.682 + 0.244 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-101	$1.364 + 0.038 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.243 + 0.085 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.841 + 0.131 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-001	$0.770 + 0.185 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.784 + 0.219 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.251 + 0.244 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-001	$0.952 + 0.038 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.864 + 0.086 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.319 + 0.131 \cdot \text{Tr} + 0.025 \cdot \text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot \text{Tr}$	$0.654 + 0.193 \cdot \text{Tr}$	$1.271 + 0.254 \cdot \text{Tr}$
LZ-01	$0.350 + 0.137 \cdot \text{Tr}$	$0.567 + 0.195 \cdot \text{Tr}$	$0.926 + 0.253 \cdot \text{Tr}$
HZ-11	$0.368 + 0.137 \cdot \text{Tr}$	$0.650 + 0.201 \cdot \text{Tr}$	$1.267 + 0.261 \cdot \text{Tr}$
LZ-11	$0.350 + 0.138 \cdot \text{Tr}$	$0.568 + 0.195 \cdot \text{Tr}$	$0.926 + 0.252 \cdot \text{Tr}$
ZH-01	$0.970 + 0.197 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.880 + 0.242 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.338 + 0.281 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-01	$0.798 + 0.190 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.804 + 0.243 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.246 + 0.279 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-11	$1.389 + 0.197 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.262 + 0.247 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.864 + 0.281 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-11	$1.104 + 0.195 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.127 + 0.243 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.704 + 0.277 \cdot \text{Tr} + 0.032 \cdot \text{C}$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

Cell Description

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_LIN

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 3632.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

Cell Description

BD8SCARUDQPCZ_EXT_CSF_1V8_FC_OUTER

- The cell has "dont.use" attribute set in the Synopsys STF.
- The cell has "dont.touch" attribute set in the Synopsys STF.

Physical Dimensions

Area(um2) : 8307.000

Glossary

Tr : Input Transition time
C : Output (capacitive) load
R : Rising edge
F : Falling edge

Logical Symbol



Truth Table

IO	ZI
IO	IO

A	EN	TA	TEN	TM	PUN	PDN	PUN15K	IO
A	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	H
-	1	-	-	0	0	1	-	H
-	-	-	1	1	-	1	0	H
-	-	-	1	1	0	1	-	H
-	-	-	1	1	1	0	1	L
-	1	-	-	0	1	0	1	L
-	1	-	-	0	0	0	-	W
-	1	-	-	0	-	0	0	W
-	-	-	1	1	0	0	-	W
-	-	-	1	1	-	0	0	W
-	-	-	1	1	1	1	1	Z
-	1	-	-	0	1	1	1	Z

Cell Capacitance

Parameter	Value(pF)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125

A Input Cap.	0.0258	0.0248	0.0240
ASRCN1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000	10000.000
EN Input Cap.	0.0196	0.0193	0.0190
HYST Input Cap.	0.0146	0.0143	0.0141
IO Input Cap.	1.5512	1.5477	1.5459
IO Max Load	201.551	201.548	201.546
LOWEMI Input Cap.	0.0107	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0098	0.0096
REFIOA1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000	10000.000
TA Input Cap.	0.0268	0.0258	0.0250
TEN Input Cap.	0.0184	0.0180	0.0178
TM Input Cap.	0.0331	0.0324	0.0323
ZI Max Load	0.200	0.200	0.200

Special Pin Properties

Pin	Parameter	Value		
		best 1.10	typ 1.00	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65

IO (Input)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Input)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Input)	Slope thres. low (V)	-	-	-
IO (Input)	Slope thres. high (V)	-	-	-
IO (Output)	Min Transition (ns)	-	-	-
IO (Output)	Max Transition (ns)	-	-	-
IO (Output)	Swing (V)	0.0 - 1.95	0.0 - 1.8	0.0 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.9	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.9	0.825
IO (Output)	Slope thres. low (V)	0.585	0.54	0.495
IO (Output)	Slope thres. high (V)	1.365	1.26	1.155

Propagation Delay

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$1.062 + 0.185 \cdot Tr + 0.041 \cdot C$	$1.097 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.681 + 0.242 \cdot Tr + 0.032 \cdot C$
R-010	$1.365 + 0.037 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.080 \cdot Tr + 0.028 \cdot C$	$1.843 + 0.127 \cdot Tr + 0.028 \cdot C$
F-000	$0.771 + 0.182 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.217 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.029 \cdot C$
R-000	$0.953 + 0.036 \cdot Tr + 0.031 \cdot C$	$0.865 + 0.087 \cdot Tr + 0.026 \cdot C$	$1.321 + 0.128 \cdot Tr + 0.025 \cdot C$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	$0.368 + 0.136 \cdot Tr$	$0.650 + 0.200 \cdot Tr$	$1.270 + 0.259 \cdot Tr$
LZ-10	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.194 \cdot Tr$	$0.928 + 0.250 \cdot Tr$
HZ-00	$0.367 + 0.136 \cdot Tr$	$0.654 + 0.194 \cdot Tr$	$1.273 + 0.250 \cdot Tr$
LZ-00	$0.351 + 0.137 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.928 + 0.249 \cdot Tr$
ZH-10	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.261 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.863 + 0.280 \cdot Tr + 0.028 \cdot C$
ZL-10	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.126 + 0.245 \cdot Tr + 0.034 \cdot C$	$1.702 + 0.277 \cdot Tr + 0.032 \cdot C$
ZH-00	$0.967 + 0.201 \cdot Tr + 0.031 \cdot C$	$0.879 + 0.248 \cdot Tr + 0.026 \cdot C$	$1.337 + 0.282 \cdot Tr + 0.025 \cdot C$
ZL-00	$0.797 + 0.192 \cdot Tr + 0.039 \cdot C$	$0.803 + 0.245 \cdot Tr + 0.033 \cdot C$	$1.245 + 0.277 \cdot Tr + 0.030 \cdot C$
Path IO-ZI (for pins HYST)			
F-1	$0.309 + 0.196 \cdot Tr + 0.149 \cdot C$	$0.416 + 0.217 \cdot Tr + 0.198 \cdot C$	$0.591 + 0.242 \cdot Tr + 0.297 \cdot C$
R-1	$0.321 + 0.192 \cdot Tr + 0.075 \cdot C$	$0.422 + 0.212 \cdot Tr + 0.130 \cdot C$	$0.592 + 0.239 \cdot Tr + 0.197 \cdot C$
F-0	$0.283 + 0.050 \cdot Tr + 0.139 \cdot C$	$0.379 + 0.058 \cdot Tr + 0.198 \cdot C$	$0.545 + 0.074 \cdot Tr + 0.300 \cdot C$
R-0	$0.297 + 0.029 \cdot Tr + 0.083 \cdot C$	$0.393 + 0.046 \cdot Tr + 0.128 \cdot C$	$0.559 + 0.071 \cdot Tr + 0.206 \cdot C$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$1.063 + 0.186 \cdot Tr + 0.041 \cdot C$	$1.098 + 0.218 \cdot Tr + 0.034 \cdot C$	$1.682 + 0.244 \cdot Tr + 0.032 \cdot C$
R-101	$1.364 + 0.038 \cdot Tr + 0.033 \cdot C$	$1.243 + 0.085 \cdot Tr + 0.028 \cdot C$	$1.841 + 0.131 \cdot Tr + 0.028 \cdot C$
F-001	$0.770 + 0.185 \cdot Tr + 0.039 \cdot C$	$0.784 + 0.219 \cdot Tr + 0.033 \cdot C$	$1.251 + 0.244 \cdot Tr + 0.030 \cdot C$
R-001	$0.952 + 0.038 \cdot Tr + 0.031 \cdot C$	$0.864 + 0.086 \cdot Tr + 0.026 \cdot C$	$1.319 + 0.131 \cdot Tr + 0.025 \cdot C$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	$0.366 + 0.139 \cdot Tr$	$0.654 + 0.193 \cdot Tr$	$1.271 + 0.254 \cdot Tr$
LZ-01	$0.350 + 0.137 \cdot Tr$	$0.567 + 0.195 \cdot Tr$	$0.926 + 0.253 \cdot Tr$
HZ-11	$0.368 + 0.137 \cdot Tr$	$0.650 + 0.201 \cdot Tr$	$1.267 + 0.261 \cdot Tr$
LZ-11	$0.350 + 0.138 \cdot Tr$	$0.568 + 0.195 \cdot Tr$	$0.926 + 0.252 \cdot Tr$
ZH-01	$0.970 + 0.197 \cdot Tr + 0.031 \cdot C$	$0.880 + 0.242 \cdot Tr + 0.026 \cdot C$	$1.338 + 0.281 \cdot Tr + 0.025 \cdot C$
ZL-01	$0.798 + 0.190 \cdot Tr + 0.039 \cdot C$	$0.804 + 0.243 \cdot Tr + 0.033 \cdot C$	$1.246 + 0.279 \cdot Tr + 0.030 \cdot C$
ZH-11	$1.389 + 0.197 \cdot Tr + 0.033 \cdot C$	$1.262 + 0.247 \cdot Tr + 0.028 \cdot C$	$1.864 + 0.281 \cdot Tr + 0.028 \cdot C$
ZL-11	$1.104 + 0.195 \cdot Tr + 0.041 \cdot C$	$1.127 + 0.243 \cdot Tr + 0.034 \cdot C$	$1.704 + 0.277 \cdot Tr + 0.032 \cdot C$

Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	$0.363 + 0.167 \cdot \text{Tr}$	$0.647 + 0.233 \cdot \text{Tr}$	$1.263 + 0.298 \cdot \text{Tr}$
LZ-011	$0.234 + 0.046 \cdot \text{Tr}$	$0.410 + 0.098 \cdot \text{Tr}$	$0.686 + 0.128 \cdot \text{Tr}$
HZ-110	$0.382 + 0.227 \cdot \text{Tr}$	$0.680 + 0.252 \cdot \text{Tr}$	$1.308 + 0.300 \cdot \text{Tr}$
LZ-110	$0.254 + 0.236 \cdot \text{Tr}$	$0.441 + 0.270 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
HZ-001	$0.363 + 0.165 \cdot \text{Tr}$	$0.648 + 0.235 \cdot \text{Tr}$	$1.262 + 0.309 \cdot \text{Tr}$
LZ-001	$0.234 + 0.049 \cdot \text{Tr}$	$0.409 + 0.074 \cdot \text{Tr}$	$0.688 + 0.088 \cdot \text{Tr}$
HZ-100	$0.382 + 0.225 \cdot \text{Tr}$	$0.678 + 0.254 \cdot \text{Tr}$	$1.309 + 0.296 \cdot \text{Tr}$
LZ-100	$0.253 + 0.239 \cdot \text{Tr}$	$0.441 + 0.269 \cdot \text{Tr}$	$0.730 + 0.313 \cdot \text{Tr}$
ZH-011	$1.386 + 0.224 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.255 + 0.277 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.851 + 0.320 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-011	$1.101 + 0.225 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.122 + 0.276 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.315 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-110	$1.395 + 0.007 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.271 + 0.052 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.093 \cdot \text{Tr} + 0.028 \cdot \text{C}$
ZL-110	$1.112 + 0.017 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.140 + 0.064 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.723 + 0.114 \cdot \text{Tr} + 0.032 \cdot \text{C}$
ZH-001	$0.964 + 0.229 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.872 + 0.280 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.325 + 0.323 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-001	$0.795 + 0.220 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.798 + 0.275 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.236 + 0.319 \cdot \text{Tr} + 0.030 \cdot \text{C}$
ZH-100	$0.974 + 0.009 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.889 + 0.053 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.353 + 0.093 \cdot \text{Tr} + 0.025 \cdot \text{C}$
ZL-100	$0.806 + 0.016 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.817 + 0.066 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.265 + 0.114 \cdot \text{Tr} + 0.030 \cdot \text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$1.070 + 0.008 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.106 + 0.060 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.695 + 0.100 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-10100	$1.382 + 0.230 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.269 + 0.266 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.878 + 0.309 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-00110	$1.057 + 0.201 \cdot \text{Tr} + 0.041 \cdot \text{C}$	$1.090 + 0.233 \cdot \text{Tr} + 0.034 \cdot \text{C}$	$1.672 + 0.258 \cdot \text{Tr} + 0.032 \cdot \text{C}$
R-00110	$1.362 + 0.035 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.241 + 0.086 \cdot \text{Tr} + 0.028 \cdot \text{C}$	$1.836 + 0.141 \cdot \text{Tr} + 0.028 \cdot \text{C}$
F-10000	$0.779 + 0.006 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.793 + 0.061 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.264 + 0.103 \cdot \text{Tr} + 0.029 \cdot \text{C}$
R-10000	$0.968 + 0.235 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.890 + 0.267 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.356 + 0.307 \cdot \text{Tr} + 0.025 \cdot \text{C}$
F-00010	$0.765 + 0.201 \cdot \text{Tr} + 0.039 \cdot \text{C}$	$0.776 + 0.233 \cdot \text{Tr} + 0.033 \cdot \text{C}$	$1.240 + 0.262 \cdot \text{Tr} + 0.030 \cdot \text{C}$
R-00010	$0.949 + 0.037 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.861 + 0.092 \cdot \text{Tr} + 0.026 \cdot \text{C}$	$1.314 + 0.141 \cdot \text{Tr} + 0.025 \cdot \text{C}$

Transition Time

Event	Value (as a function of C in pF and Tr in nS)		
	best 1.10 -40	typ 1.00 25	worst 0.90 125
Path A-IO (for pins EN LOWEMI TM)			
F-010	$0.204 + 0.031 \cdot \text{C}$	$0.156 + 0.027 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-010	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.194 - 0.002 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$
F-000	$0.127 + 0.001 \cdot \text{Tr} + 0.031 \cdot \text{C}$	$0.081 + 0.027 \cdot \text{C}$	$0.147 + 0.023 \cdot \text{C}$
R-000	$0.161 + 0.002 \cdot \text{Tr} + 0.025 \cdot \text{C}$	$0.102 + 0.003 \cdot \text{Tr} + 0.022 \cdot \text{C}$	$0.187 + 0.002 \cdot \text{Tr} + 0.020 \cdot \text{C}$
Path EN-IO (for pins LOWEMI TM)			
HZ-10	0.000	0.000	0.000
LZ-10	0.000	0.000	0.000
HZ-00	0.000	0.000	0.000
LZ-00	0.000	0.000	0.000
ZH-10	$0.277 + 0.024 \cdot \text{C}$	$0.196 + 0.022 \cdot \text{C}$	$0.325 + 0.020 \cdot \text{C}$
ZL-10	$0.210 - 0.001 \cdot \text{Tr} + 0.030 \cdot \text{C}$	$0.160 + 0.026 \cdot \text{C}$	$0.272 + 0.023 \cdot \text{C}$
ZH-00	$0.164 + 0.025 \cdot \text{C}$	$0.104 + 0.022 \cdot \text{C}$	$0.190 + 0.001 \cdot \text{Tr} + 0.020 \cdot \text{C}$
ZL-00	$0.131 + 0.031 \cdot \text{C}$	$0.085 + 0.027 \cdot \text{C}$	$0.155 + 0.023 \cdot \text{C}$
Path IO-ZI (for pins HYST)			
F-1	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.230 \cdot \text{C}$
R-1	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.088 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
F-0	$0.004 + 0.101 \cdot \text{C}$	$0.005 + 0.148 \cdot \text{C}$	$0.008 + 0.229 \cdot \text{C}$
R-0	$0.003 + 0.057 \cdot \text{C}$	$0.005 + 0.089 \cdot \text{C}$	$0.007 + 0.145 \cdot \text{C}$
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	$0.205 + 0.031 \cdot \text{C}$	$0.156 + 0.026 \cdot \text{C}$	$0.258 + 0.001 \cdot \text{Tr} + 0.023 \cdot \text{C}$
R-101	$0.275 - 0.001 \cdot \text{Tr} + 0.024 \cdot \text{C}$	$0.193 + 0.022 \cdot \text{C}$	$0.321 + 0.020 \cdot \text{C}$

F-001	$0.128 + 0.031^{\circ}\text{C}$	$0.082 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-001	$0.162 + 0.002^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.000	0.000	0.000
LZ-01	0.000	0.000	0.000
HZ-11	0.000	0.000	0.000
LZ-11	0.000	0.000	0.000
ZH-01	$0.163 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-01	$0.132 - 0.002^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 - 0.001^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-11	$0.278 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.325 + 0.020^{\circ}\text{C}$
ZL-11	$0.209 + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins EN LOWEMI TEN)			
HZ-011	0.000	0.000	0.000
LZ-011	0.000	0.000	0.000
HZ-110	0.000	0.000	0.000
LZ-110	0.000	0.000	0.000
HZ-001	0.000	0.000	0.000
LZ-001	0.000	0.000	0.000
HZ-100	0.000	0.000	0.000
LZ-100	0.000	0.000	0.000
ZH-011	$0.277 + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.326 + 0.020^{\circ}\text{C}$
ZL-011	$0.210 - 0.002^{\circ}\text{Tr} + 0.030^{\circ}\text{C}$	$0.160 + 0.026^{\circ}\text{C}$	$0.272 + 0.023^{\circ}\text{C}$
ZH-110	$0.277 + 0.001^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.196 + 0.022^{\circ}\text{C}$	$0.325 - 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-110	$0.210 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.160 + 0.002^{\circ}\text{Tr} + 0.026^{\circ}\text{C}$	$0.272 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
ZH-001	$0.164 + 0.025^{\circ}\text{C}$	$0.103 + 0.003^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.190 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
ZL-001	$0.132 - 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
ZH-100	$0.164 + 0.025^{\circ}\text{C}$	$0.104 + 0.022^{\circ}\text{C}$	$0.190 + 0.020^{\circ}\text{C}$
ZL-100	$0.132 + 0.001^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.085 + 0.027^{\circ}\text{C}$	$0.155 + 0.023^{\circ}\text{C}$
Path TM-IO (for pins A EN LOWEMI TA TEN)			
F-10100	$0.205 - 0.003^{\circ}\text{Tr} + 0.031^{\circ}\text{C}$	$0.156 + 0.027^{\circ}\text{C}$	$0.258 + 0.023^{\circ}\text{C}$
R-10100	$0.276 - 0.007^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 + 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.002^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$
F-00110	$0.205 + 0.031^{\circ}\text{C}$	$0.156 - 0.002^{\circ}\text{Tr} + 0.027^{\circ}\text{C}$	$0.259 - 0.001^{\circ}\text{Tr} + 0.023^{\circ}\text{C}$
R-00110	$0.275 - 0.002^{\circ}\text{Tr} + 0.024^{\circ}\text{C}$	$0.193 - 0.001^{\circ}\text{Tr} + 0.022^{\circ}\text{C}$	$0.321 + 0.020^{\circ}\text{C}$
F-10000	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.148 + 0.023^{\circ}\text{C}$
R-10000	$0.162 + 0.001^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.103 + 0.022^{\circ}\text{C}$	$0.187 + 0.020^{\circ}\text{C}$
F-00010	$0.128 + 0.031^{\circ}\text{C}$	$0.082 + 0.027^{\circ}\text{C}$	$0.147 + 0.023^{\circ}\text{C}$
R-00010	$0.161 + 0.003^{\circ}\text{Tr} + 0.025^{\circ}\text{C}$	$0.102 + 0.022^{\circ}\text{C}$	$0.187 + 0.001^{\circ}\text{Tr} + 0.020^{\circ}\text{C}$

Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 -40	4.383e-05	5.255e-05
typ 1.00 25	2.760e-05	5.499e-05
worst 0.90 125	3.633e-04	4.955e-04

Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
	best 1.10 -40 (Min values)	best 1.10 -40 (Max values)	typ 1.00 25 (Min values)	typ 1.00 25 (Max values)	worst 0.90 125 (Min values)	worst 0.90 125 (Max values)
For vdd						

IO toggling/ Output stable	0.448 + 0.130*Tr	0.569 + 0.408*Tr	0.340 + 0.058*Tr	0.440 + 0.193*Tr	0.265 + 0.040*Tr	0.343 + 0.130*Tr
ZI toggling	0.251	0.254 + 0.006*Tr	0.187	0.189 + 0.003*Tr	0.143	0.144 + 0.002*Tr
For vdde1v8						
IO toggling/ Output stable	9.075 + 0.022*Tr	10.524 + 0.062*Tr	8.034 + 0.001*Tr	9.295 + 0.013*Tr	7.335 + 0.011*Tr	9.657 - 0.006*Tr
ZI toggling	0.469 + 0.586*Tr	0.662 + 1.080*Tr	0.354 + 0.261*Tr	0.510 + 0.507*Tr	0.279 + 0.120*Tr	0.387 + 0.235*Tr



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