

# C28SOI\_IO\_EXT\_3V3SF\_GPIO3V3\_FSNFS\_LR\_EG Databook

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.

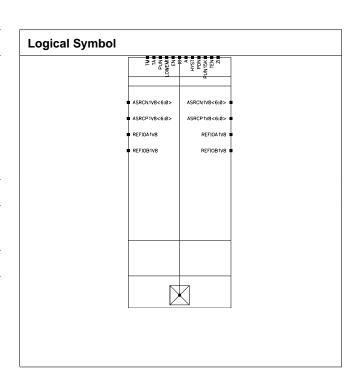
#### **Physical Dimensions**

Area(um2): 4252.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	IO

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA

-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	Valu	e(pF)
Farameter	best 1.10 125	worst 0.90 -40
A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261



PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

Pin	Parameter	Va	lue
Pill	Parameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65
IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Front	Value (as a function of	of C in pF and Tr in nS)	
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )			
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C	
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C	
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C	
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C	
Path EN-IO (for pins LOWEMI TM )	•		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr	
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr	
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr	
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr	
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C	
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C	
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C	
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C	
Path IO-ZI (for pins HYST )			
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C	
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C	
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C	
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C	



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F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C
Path TEN-IO (for pins LOWEMI TM)	·	
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr
LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Event	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		



LZ-00	0.000	0.000
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C
Path IO-ZI (for pins HYST )	0.000 0.001 11 1 0.101 0	0.010 1 0.002 0
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.130*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN TM		
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C
F-001	0.058 + 0.107*C	0.047 + 0.092*C
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000
LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA	A TEN )	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

**Default Leakage Power** 



Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)					
Pin Cycle	best 1.10 125 (Min	best 1.10 125 (Max	worst 0.90 -40 (Min	worst 0.90 -40 (Max		
	values)	values)	values)	values)		
For vdd						
IO toggling/Output	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr		
stable						
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149		
For vdde1v8						
IO toggling/Output	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr		
stable						
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

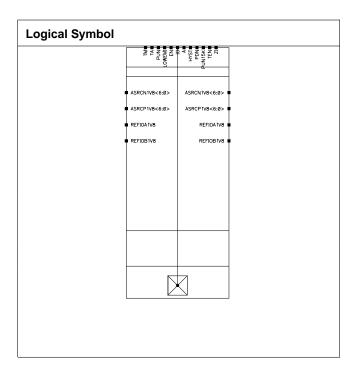
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i aiametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)		,		
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C		
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C		
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C		
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr		
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr		
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr		
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ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C		
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C		
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C		
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C		
Path IO-ZI (for pins HYST )	-			
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C		
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C		
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C		
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	<i>(</i> 1)			
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C		
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C		
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C		
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr		
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr		
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr		
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr		
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C		
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C		
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C		
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C		
Path TM-IO (for pins EN LOWEMI TEI	N )	'		
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr		
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr		
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr		



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LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI T	A TEN )	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )	•			
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN	)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			•	
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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 STE.
- 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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Eveni	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C
Path IO-ZI (for pins HYST )		l
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM)	)	1
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr



LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Front	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM	)	
F-010	0.166 + 0.105*C	0.130 + 0.091*C
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C
F-000	0.058 + 0.107*C	0.047 + 0.092*C
R-000	0.173 + 0.088*C	0.107 + 0.074*C
Path EN-IO (for pins LOWEMI TM )	,	
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.130*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M)	
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C
F-001	0.058 + 0.107*C	0.047 + 0.092*C
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			1	1
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM)		,			
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C			
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C			
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C			
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr			
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr			
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr			
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr			
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C			
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C			
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C			
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C			
Path IO-ZI (for pins HYST )	-				
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C			
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C			
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C			
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	<i>(</i> 1)				
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C			
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C			
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C			
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C			
Path TEN-IO (for pins LOWEMI TM)					
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr			
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr			
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr			
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr			
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C			
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C			
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C			
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C			
Path TM-IO (for pins EN LOWEMI TEI	N )	'			
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr			
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr			
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr			



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LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI TA	TEN )	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )	,			
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TE	EN)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			•	
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

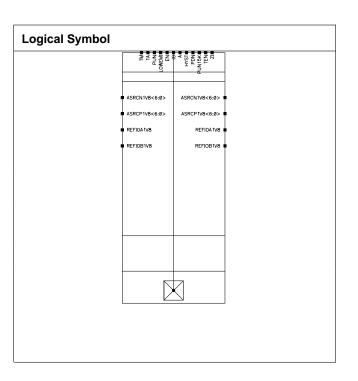
#### **Physical Dimensions**

Area(um2): 4252.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

А	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

Pin	Parameter	Val	lue
	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Eveni	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C		
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C		
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C		
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr		
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr		
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr		
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr		
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C		
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C		
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C		
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C		
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C		
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C		
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)	)	1		
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C		
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C		
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C		
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr		
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr		
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr		
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr		
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C		
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C		
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C		
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr		
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr		
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr		



0.390 + 0.266*Tr	0.444 + 0.466*Tr
0.522 + 0.187*Tr	0.558 + 0.391*Tr
0.364 + 0.012*Tr	0.396 + 0.262*Tr
0.547 + 0.261*Tr	0.605 + 0.427*Tr
0.389 + 0.266*Tr	0.441 + 0.486*Tr
1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
EN )	
1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C
	$\begin{array}{c} 0.522 + 0.187^*\mathrm{Tr} \\ 0.364 + 0.012^*\mathrm{Tr} \\ 0.547 + 0.261^*\mathrm{Tr} \\ 0.389 + 0.266^*\mathrm{Tr} \\ 1.306 + 0.207^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.160 + 0.201^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.320 - 0.035^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.175 - 0.021^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.060 + 0.207^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.742 + 0.200^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.075 - 0.035^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.758 - 0.022^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \hline{\textbf{EN}} \\ \\ \hline 1.144 - 0.030^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.317 + 0.260^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.129 + 0.213^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.294 + 0.025^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 0.738 - 0.028^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.078 + 0.260^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \end{array}$

## **Transition Time**

Cyant	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	0.166 + 0.105*C	0.130 + 0.091*C
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C
F-000	0.058 + 0.107*C	0.047 + 0.092*C
R-000	0.173 + 0.088*C	0.107 + 0.074*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.130*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C
F-001	0.058 + 0.107*C	0.047 + 0.092*C
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA TI		
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)			
Fill Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8				•
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

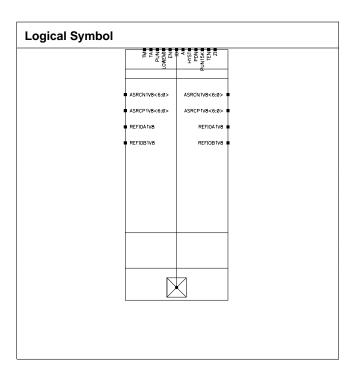
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C			
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C			
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C			
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr			
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr			
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr			
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr			
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C			
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C			
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C			
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C			
Path IO-ZI (for pins HYST )		1			
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C			
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C			
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C			
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	)				
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C			
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C			
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C			
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C			
Path TEN-IO (for pins LOWEMI TM )		,			
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr			
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr			
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr			
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr			
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C			
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C			
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C			
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C			
Path TM-IO (for pins EN LOWEMI TEN	1)				
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr			
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr			
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr			



LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI T	A TEN )	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Frant	Value (as a function of	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-11         0.172 - 0.003*Tr + 0.105°C         0.133 + 0.090°C           Path TM-IO (for pins EN LOWEMI TEN )           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           ZH-011         0.272 + 0.087°C         0.177 + 0.073°C           ZL-011         0.171 - 0.002°Tr + 0.105°C         0.133 + 0.090°C           ZH-110         0.271 + 0.002°Tr + 0.105°C         0.133 + 0.090°C           ZH-101         0.174 + 0.001°Tr + 0.088°C         0.178 + 0.074°C           ZH-001         0.174 + 0.001°Tr + 0.088°C         0.108 + 0.074°C           ZH-001         0.175 + 0.001°Tr + 0.088°C         0.108 + 0.074°C           ZH-100         0.059 - 0.001°Tr + 0.008°C         0.044 + 0.092°C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.167 - 0.001°Tr + 0.105°C         0.130 + 0.091°C           R-10100         0.167 - 0.002°Tr + 0.105°C         0.130 + 0.091°C <td>ZL-01</td> <td>0.059 + 0.107*C</td> <td>0.048 + 0.092*C</td>	ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.272 + 0.087°C         0.177 + 0.073°C           ZH-011         0.272 + 0.087°C         0.177 + 0.073°C           ZL-011         0.171 - 0.002°Tr + 0.105°C         0.133 + 0.090°C           ZH-110         0.271 + 0.002°Tr + 0.087°C         0.177 + 0.073°C           ZL-110         0.170 + 0.105°C         0.133 + 0.090°C           ZH-001         0.174 + 0.001°Tr + 0.088°C         0.108 + 0.074°C           ZL-100         0.059 + 0.107°C         0.048 + 0.092°C           ZH-100         0.175 + 0.001°Tr + 0.088°C         0.108 + 0.074°C           ZL-100         0.059 + 0.001°Tr + 0.107°C         0.047 + 0.001°Tr + 0.092°C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.167 - 0.002°Tr + 0.105°C         0.130 + 0.091°C           R-10100         0.167 - 0.002°Tr + 0.105°C	ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
HZ-011			0.133 + 0.090*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.171 - 0.002*Tr + 0.105*C         0.133 + 0.090*C           ZH-011         0.171 - 0.002*Tr + 0.087*C         0.177 + 0.073*C           ZH-110         0.271 + 0.002*Tr + 0.087*C         0.177 + 0.073*C           ZL-101         0.170 + 0.105*C         0.133 + 0.090*C           ZH-001         0.170 + 0.105*C         0.133 + 0.090*C           ZH-001         0.174 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-001         0.059 + 0.107*C         0.048 + 0.092*C           ZH-100         0.175 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-100         0.059 - 0.001*Tr + 0.105*C         0.130 + 0.091*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.167 - 0.001*Tr + 0.105*C         0.130 + 0.091*C           R-10100         0.167 - 0.002*Tr + 0.105*C         0.130 + 0.091*C           R-00110         0.167 - 0.002*Tr + 0.105*C         0.175 +	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011		0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.272 + 0.087*C         0.177 + 0.073*C           ZL-011         0.171 - 0.002*Tr + 0.105*C         0.133 + 0.090*C           ZH-110         0.271 + 0.002*Tr + 0.087*C         0.177 + 0.073*C           ZL-110         0.170 + 0.105*C         0.133 + 0.090*C           ZH-001         0.174 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-001         0.059 + 0.107*C         0.048 + 0.092*C           ZH-100         0.175 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-100         0.059 - 0.001*Tr + 0.107*C         0.047 + 0.001*Tr + 0.092*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.167 - 0.001*Tr + 0.105*C         0.130 + 0.091*C           R-10100         0.269 + 0.087*C         0.175 + 0.073*C           F-00110         0.269 + 0.087*C         0.175 + 0.073*C           F-10000         0.057 + 0.107*C         0.047 + 0.092*C           R-10000         0.072 + 0.002*Tr + 0.008*C         0.107 + 0.074*C	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.272 + 0.087*C         0.177 + 0.073*C           ZL-011         0.171 - 0.002*Tr + 0.005*C         0.133 + 0.090*C           ZH-110         0.271 + 0.002*Tr + 0.087*C         0.177 + 0.073*C           ZL-110         0.170 + 0.105*C         0.133 + 0.090*C           ZH-001         0.174 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-001         0.059 + 0.107*C         0.048 + 0.092*C           ZH-100         0.175 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-100         0.059 - 0.001*Tr + 0.107*C         0.047 + 0.001*Tr + 0.092*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.167 - 0.001*Tr + 0.105*C         0.130 + 0.091*C           R-10100         0.269 + 0.087*C         0.175 + 0.073*C           F-00110         0.167 - 0.002*Tr + 0.105*C         0.130 + 0.091*C           R-00110         0.269 + 0.087*C         0.175 + 0.073*C           F-10000         0.057 + 0.107*C         0.047 + 0.092*C	LZ-110	0.000	0.000
HZ-100       0.000       0.000         LZ-100       0.000       0.000         ZH-011       0.272 + 0.087*C       0.177 + 0.073*C         ZL-011       0.171 - 0.002*Tr + 0.105*C       0.133 + 0.090*C         ZH-110       0.271 + 0.002*Tr + 0.087*C       0.177 + 0.073*C         ZL-110       0.170 + 0.105*C       0.133 + 0.090*C         ZH-001       0.174 + 0.001*Tr + 0.088*C       0.108 + 0.074*C         ZL-001       0.059 + 0.107*C       0.048 + 0.092*C         ZH-100       0.175 + 0.001*Tr + 0.088*C       0.108 + 0.074*C         ZL-100       0.059 - 0.001*Tr + 0.107*C       0.047 + 0.001*Tr + 0.092*C         Path TM-IO (for pins A EN LOWEMI TA TEN )         F-10100       0.167 - 0.001*Tr + 0.105*C       0.130 + 0.091*C         R-10100       0.269 + 0.087*C       0.175 + 0.073*C         F-00110       0.167 - 0.002*Tr + 0.105*C       0.130 + 0.091*C         R-00110       0.269 + 0.087*C       0.175 + 0.073*C         F-10000       0.057 + 0.107*C       0.047 + 0.092*C         R-10000       0.172 + 0.002*Tr + 0.008*C       0.107 + 0.074*C         F-00010       0.058 + 0.107*C       0.047 + 0.092*C	HZ-001	0.000	0.000
LZ-100         0.000         0.000           ZH-011         0.272 + 0.087*C         0.177 + 0.073*C           ZL-011         0.171 - 0.002*Tr + 0.105*C         0.133 + 0.090*C           ZH-110         0.271 + 0.002*Tr + 0.087*C         0.177 + 0.073*C           ZL-110         0.170 + 0.105*C         0.133 + 0.090*C           ZH-001         0.174 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-001         0.059 + 0.107*C         0.048 + 0.092*C           ZH-100         0.175 + 0.001*Tr + 0.088*C         0.108 + 0.074*C           ZL-100         0.059 - 0.001*Tr + 0.107*C         0.047 + 0.001*Tr + 0.092*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.167 - 0.001*Tr + 0.105*C         0.130 + 0.091*C           R-10100         0.269 + 0.087*C         0.175 + 0.073*C           F-00110         0.167 - 0.002*Tr + 0.105*C         0.130 + 0.091*C           R-00110         0.269 + 0.087*C         0.175 + 0.073*C           F-10000         0.057 + 0.107*C         0.047 + 0.092*C           R-10000         0.172 + 0.002*Tr + 0.008*C         0.107 + 0.074*C	LZ-001	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011       0.171 - 0.002*Tr + 0.105*C       0.133 + 0.090*C         ZH-110       0.271 + 0.002*Tr + 0.087*C       0.177 + 0.073*C         ZL-110       0.170 + 0.105*C       0.133 + 0.090*C         ZH-001       0.174 + 0.001*Tr + 0.088*C       0.108 + 0.074*C         ZL-001       0.059 + 0.107*C       0.048 + 0.092*C         ZH-100       0.175 + 0.001*Tr + 0.088*C       0.108 + 0.074*C         ZL-100       0.059 - 0.001*Tr + 0.107*C       0.047 + 0.001*Tr + 0.092*C         Path TM-IO (for pins A EN LOWEMI TA TEN )         F-10100       0.167 - 0.001*Tr + 0.105*C       0.130 + 0.091*C         R-10100       0.269 + 0.087*C       0.175 + 0.073*C         F-00110       0.167 - 0.002*Tr + 0.105*C       0.130 + 0.091*C         R-00110       0.269 + 0.087*C       0.130 + 0.091*C         R-10000       0.057 + 0.107*C       0.047 + 0.092*C         R-10000       0.172 + 0.002*Tr + 0.088*C       0.107 + 0.074*C         F-00010       0.058 + 0.107*C       0.047 + 0.092*C	LZ-100	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-011	0.171 - 0.002*Tr + 0.105*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
F-10100       0.167 - 0.001*Tr + 0.105*C       0.130 + 0.091*C         R-10100       0.269 + 0.087*C       0.175 + 0.073*C         F-00110       0.167 - 0.002*Tr + 0.105*C       0.130 + 0.091*C         R-00110       0.269 + 0.087*C       0.175 + 0.073*C         F-10000       0.057 + 0.107*C       0.047 + 0.092*C         R-10000       0.172 + 0.002*Tr + 0.088*C       0.107 + 0.074*C         F-00010       0.058 + 0.107*C       0.047 + 0.092*C	ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
R-10100       0.269 + 0.087*C       0.175 + 0.073*C         F-00110       0.167 - 0.002*Tr + 0.105*C       0.130 + 0.091*C         R-00110       0.269 + 0.087*C       0.175 + 0.073*C         F-10000       0.057 + 0.107*C       0.047 + 0.092*C         R-10000       0.172 + 0.002*Tr + 0.088*C       0.107 + 0.074*C         F-00010       0.058 + 0.107*C       0.047 + 0.092*C	Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-00110         0.167 - 0.002*Tr + 0.105*C         0.130 + 0.091*C           R-00110         0.269 + 0.087*C         0.175 + 0.073*C           F-10000         0.057 + 0.107*C         0.047 + 0.092*C           R-10000         0.172 + 0.002*Tr + 0.088*C         0.107 + 0.074*C           F-00010         0.058 + 0.107*C         0.047 + 0.092*C	F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-00110     0.269 + 0.087*C     0.175 + 0.073*C       F-10000     0.057 + 0.107*C     0.047 + 0.092*C       R-10000     0.172 + 0.002*Tr + 0.088*C     0.107 + 0.074*C       F-00010     0.058 + 0.107*C     0.047 + 0.092*C	R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-10000         0.057 + 0.107*C         0.047 + 0.092*C           R-10000         0.172 + 0.002*Tr + 0.088*C         0.107 + 0.074*C           F-00010         0.058 + 0.107*C         0.047 + 0.092*C	F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-10000 0.172 + 0.002*Tr + 0.088*C 0.107 + 0.074*C F-00010 0.058 + 0.107*C 0.047 + 0.092*C	R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-00010 0.058 + 0.107*C 0.047 + 0.092*C	F-10000	0.057 + 0.107*C	0.047 + 0.092*C
	R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
R-00010 0.173 + 0.088*C 0.107 + 0.074*C	F-00010	0.058 + 0.107*C	0.047 + 0.092*C
	R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8				
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
raiametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

## **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

## **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Eveni	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C
Path IO-ZI (for pins HYST )		l
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM)	)	1
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C
Path TM-IO (for pins EN LOWEMI TEN	)	
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr



LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI TA TEN )		
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Cyant	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			1	1
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

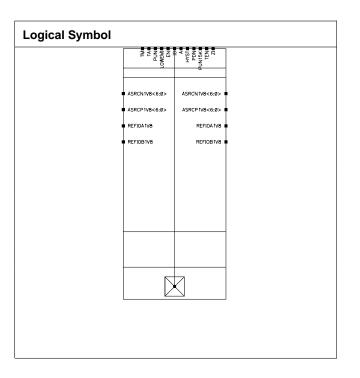
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C		
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C		
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C		
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr		
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr		
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr		
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr		
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C		
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C		
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C		
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C		
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C		
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C		
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		ı		
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C		
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C		
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C		
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr		
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr		
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr		
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr		
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C		
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C		
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C		
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr		
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr		
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr		



0.390 + 0.266*Tr	0.444 + 0.466*Tr
0.522 + 0.187*Tr	0.558 + 0.391*Tr
0.364 + 0.012*Tr	0.396 + 0.262*Tr
0.547 + 0.261*Tr	0.605 + 0.427*Tr
0.389 + 0.266*Tr	0.441 + 0.486*Tr
1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
EN )	
1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C
	$\begin{array}{c} 0.522 + 0.187^*\mathrm{Tr} \\ 0.364 + 0.012^*\mathrm{Tr} \\ 0.547 + 0.261^*\mathrm{Tr} \\ 0.389 + 0.266^*\mathrm{Tr} \\ 1.306 + 0.207^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.160 + 0.201^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.320 - 0.035^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.175 - 0.021^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.060 + 0.207^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.742 + 0.200^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.075 - 0.035^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.758 - 0.022^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \hline{\textbf{EN}} \\ \\ \hline 1.144 - 0.030^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.317 + 0.260^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.129 + 0.213^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.294 + 0.025^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 0.738 - 0.028^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.078 + 0.260^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \end{array}$

## **Transition Time**

Frant	Value (as a function of	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM	)	,
F-010	0.166 + 0.105*C	0.130 + 0.091*C
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C
F-000	0.058 + 0.107*C	0.047 + 0.092*C
R-000	0.173 + 0.088*C	0.107 + 0.074*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C
Path IO-ZI (for pins HYST )	•	
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.130*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M)	,
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C
F-001	0.058 + 0.107*C	0.047 + 0.092*C
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
Path TEN-IO (for pins LOWEMI TM)	•	,
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149	
For vdde1v8			•		
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr	
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

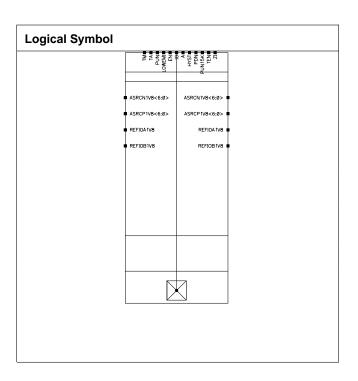
### **Physical Dimensions**

Area(um2): 4252.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i aiametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Eveni	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C
Path IO-ZI (for pins HYST )		l
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM)	)	1
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C
Path TM-IO (for pins EN LOWEMI TEN	)	
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr



LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI TA TI	EN)	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Cyant	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

# Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			1	1
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

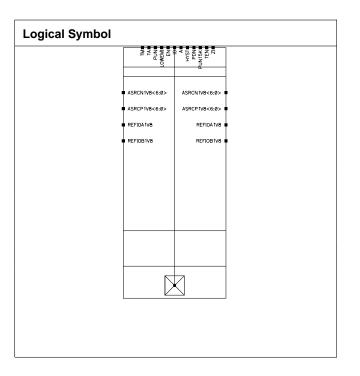
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i alametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Eveni	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C		
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C		
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C		
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr		
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr		
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr		
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr		
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C		
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C		
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C		
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C		
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C		
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C		
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)	)	1		
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C		
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C		
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C		
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr		
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr		
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr		
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr		
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C		
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C		
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C		
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr		
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr		
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr		



LZ-110	0.390 + 0.266*Tr	0.444 + 0.466*Tr
HZ-001	0.522 + 0.187*Tr	0.558 + 0.391*Tr
LZ-001	0.364 + 0.012*Tr	0.396 + 0.262*Tr
HZ-100	0.547 + 0.261*Tr	0.605 + 0.427*Tr
LZ-100	0.389 + 0.266*Tr	0.441 + 0.486*Tr
ZH-011	1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
ZL-011	1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
ZH-110	1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
ZL-110	1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
ZH-001	1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
ZL-001	0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
ZH-100	1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
ZL-100	0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
Path TM-IO (for pins A EN LOWEMI T	A TEN )	
F-10100	1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
R-10100	1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
F-00110	1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
R-00110	1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
F-10000	0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
R-10000	1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
F-00010	0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
R-00010	1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.166 + 0.105*C	0.130 + 0.091*C		
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C		
F-000	0.058 + 0.107*C	0.047 + 0.092*C		
R-000	0.173 + 0.088*C	0.107 + 0.074*C		
Path EN-IO (for pins LOWEMI TM )	,	,		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C		
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C		
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C		
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.130*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C		
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C		
F-001	0.058 + 0.107*C	0.047 + 0.092*C		
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			•	
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

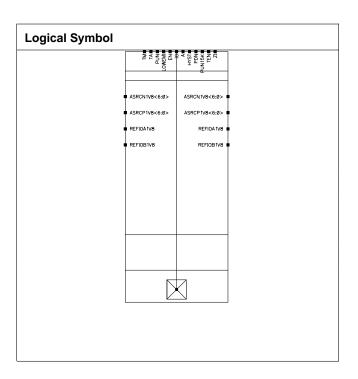
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
r arameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Eveni	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C		
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C		
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C		
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr		
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr		
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr		
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr		
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C		
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C		
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C		
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C		
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C		
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C		
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)	)	1		
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C		
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C		
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C		
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr		
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr		
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr		
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr		
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C		
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C		
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C		
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr		
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr		
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr		



0.390 + 0.266*Tr	0.444 + 0.466*Tr
0.522 + 0.187*Tr	0.558 + 0.391*Tr
0.364 + 0.012*Tr	0.396 + 0.262*Tr
0.547 + 0.261*Tr	0.605 + 0.427*Tr
0.389 + 0.266*Tr	0.441 + 0.486*Tr
1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
EN)	
1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C
	$\begin{array}{c} 0.522 + 0.187^*\mathrm{Tr} \\ 0.364 + 0.012^*\mathrm{Tr} \\ 0.547 + 0.261^*\mathrm{Tr} \\ 0.547 + 0.266^*\mathrm{Tr} \\ 1.306 + 0.207^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.160 + 0.201^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.320 - 0.035^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.175 - 0.021^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.060 + 0.207^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.742 + 0.200^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.075 - 0.035^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.758 - 0.022^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \hline{1.317} + 0.260^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.317 + 0.260^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.294 + 0.025^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.294 + 0.025^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 0.738 - 0.028^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.078 + 0.260^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \end{array}$

## **Transition Time**

Cyant	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	0.166 + 0.105*C	0.130 + 0.091*C
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C
F-000	0.058 + 0.107*C	0.047 + 0.092*C
R-000	0.173 + 0.088*C	0.107 + 0.074*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.130*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C
F-001	0.058 + 0.107*C	0.047 + 0.092*C
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TE	N)	1
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	-
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

# Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149
For vdde1v8			1	1
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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 STE.
- 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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0350
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0331	0.0322
HYST Input Cap.	0.0326	0.0319
IO Input Cap.	1.3908	1.3362
IO Max Load	51.391	51.336
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0190	0.0189
PUN Input Cap.	0.0261	0.0261
PUN15K Input Cap.	0.0252	0.0244
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0377	0.0348
TEN Input Cap.	0.0316	0.0307
TM Input Cap.	0.0450	0.0442
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM)		,
F-010	1.133 + 0.192*Tr + 0.131*C	1.200 + 0.388*Tr + 0.114*C
R-010	1.296 + 0.011*Tr + 0.110*C	1.284 + 0.247*Tr + 0.092*C
F-000	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.384*Tr + 0.111*C
R-000	1.057 + 0.009*Tr + 0.104*C	1.017 + 0.246*Tr + 0.089*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.527 + 0.140*Tr	0.570 + 0.376*Tr
LZ-10	0.521 + 0.140*Tr	0.578 + 0.375*Tr
HZ-00	0.526 + 0.141*Tr	0.569 + 0.376*Tr
LZ-00	0.521 + 0.140*Tr	0.578 + 0.376*Tr
ZH-10	1.310 + 0.170*Tr + 0.110*C	1.332 + 0.475*Tr + 0.093*C
ZL-10	1.162 + 0.165*Tr + 0.131*C	1.247 + 0.474*Tr + 0.114*C
ZH-00	1.065 + 0.170*Tr + 0.104*C	1.059 + 0.471*Tr + 0.090*C
ZL-00	0.743 + 0.164*Tr + 0.127*C	0.826 + 0.475*Tr + 0.111*C
Path IO-ZI (for pins HYST )	-	
F-1	0.417 + 0.196*Tr + 0.179*C	0.469 + 0.250*Tr + 0.168*C
R-1	0.438 + 0.181*Tr + 0.114*C	0.457 + 0.263*Tr + 0.211*C
F-0	0.379 + 0.050*Tr + 0.177*C	0.436 + 0.062*Tr + 0.242*C
R-0	0.395 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	<i>(</i> 1)	
F-101	1.134 + 0.192*Tr + 0.131*C	1.201 + 0.390*Tr + 0.114*C
R-101	1.295 + 0.014*Tr + 0.110*C	1.282 + 0.250*Tr + 0.092*C
F-001	0.728 + 0.194*Tr + 0.127*C	0.794 + 0.388*Tr + 0.111*C
R-001	1.056 + 0.012*Tr + 0.104*C	1.015 + 0.247*Tr + 0.090*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.526 + 0.140*Tr	0.568 + 0.379*Tr
LZ-01	0.521 + 0.141*Tr	0.576 + 0.379*Tr
HZ-11	0.526 + 0.141*Tr	0.568 + 0.379*Tr
LZ-11	0.521 + 0.141*Tr	0.577 + 0.379*Tr
ZH-01	1.066 + 0.167*Tr + 0.104*C	1.059 + 0.476*Tr + 0.090*C
ZL-01	0.744 + 0.164*Tr + 0.127*C	0.828 + 0.474*Tr + 0.111*C
ZH-11	1.311 + 0.168*Tr + 0.110*C	1.333 + 0.471*Tr + 0.093*C
ZL-11	1.163 + 0.162*Tr + 0.131*C	1.248 + 0.473*Tr + 0.114*C
Path TM-IO (for pins EN LOWEMI TEI	N )	'
HZ-011	0.522 + 0.188*Tr	0.558 + 0.391*Tr
LZ-011	0.364 + 0.025*Tr	0.396 + 0.253*Tr
HZ-110	0.547 + 0.261*Tr	0.606 + 0.427*Tr



0.390 + 0.266*Tr	0.444 + 0.466*Tr
0.522 + 0.187*Tr	0.558 + 0.391*Tr
0.364 + 0.012*Tr	0.396 + 0.262*Tr
0.547 + 0.261*Tr	0.605 + 0.427*Tr
0.389 + 0.266*Tr	0.441 + 0.486*Tr
1.306 + 0.207*Tr + 0.110*C	1.318 + 0.483*Tr + 0.093*C
1.160 + 0.201*Tr + 0.131*C	1.233 + 0.480*Tr + 0.114*C
1.320 - 0.035*Tr + 0.110*C	1.347 + 0.219*Tr + 0.093*C
1.175 - 0.021*Tr + 0.131*C	1.265 + 0.239*Tr + 0.114*C
1.060 + 0.207*Tr + 0.104*C	1.046 + 0.480*Tr + 0.090*C
0.742 + 0.200*Tr + 0.127*C	0.814 + 0.478*Tr + 0.111*C
1.075 - 0.035*Tr + 0.104*C	1.075 + 0.216*Tr + 0.090*C
0.758 - 0.022*Tr + 0.127*C	0.845 + 0.236*Tr + 0.111*C
EN )	
1.144 - 0.030*Tr + 0.131*C	1.209 + 0.227*Tr + 0.114*C
1.317 + 0.260*Tr + 0.110*C	1.319 + 0.440*Tr + 0.092*C
1.129 + 0.213*Tr + 0.131*C	1.188 + 0.368*Tr + 0.114*C
1.294 + 0.025*Tr + 0.110*C	1.276 + 0.229*Tr + 0.092*C
0.738 - 0.028*Tr + 0.127*C	0.802 + 0.226*Tr + 0.111*C
1.078 + 0.260*Tr + 0.104*C	1.052 + 0.438*Tr + 0.090*C
0.723 + 0.215*Tr + 0.127*C	0.781 + 0.364*Tr + 0.111*C
1.054 + 0.024*Tr + 0.104*C	1.010 + 0.229*Tr + 0.089*C
	$\begin{array}{c} 0.522 + 0.187^*\mathrm{Tr} \\ 0.364 + 0.012^*\mathrm{Tr} \\ 0.547 + 0.261^*\mathrm{Tr} \\ 0.389 + 0.266^*\mathrm{Tr} \\ 1.306 + 0.207^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.160 + 0.201^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.320 - 0.035^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.175 - 0.021^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.060 + 0.207^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.742 + 0.200^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.075 - 0.035^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.758 - 0.022^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \hline{\textbf{EN}} \\ \\ \hline 1.144 - 0.030^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.317 + 0.260^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 1.129 + 0.213^*\mathrm{Tr} + 0.131^*\mathrm{C} \\ 1.294 + 0.025^*\mathrm{Tr} + 0.110^*\mathrm{C} \\ 0.738 - 0.028^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ 1.078 + 0.260^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.104^*\mathrm{C} \\ 0.723 + 0.215^*\mathrm{Tr} + 0.127^*\mathrm{C} \\ \end{array}$

## **Transition Time**

Frant	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM		,	
F-010	0.166 + 0.105*C	0.130 + 0.091*C	
R-010	0.269 + 0.087*C	0.175 + 0.002*Tr + 0.073*C	
F-000	0.058 + 0.107*C	0.047 + 0.092*C	
R-000	0.173 + 0.088*C	0.107 + 0.074*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	0.000	0.000	
LZ-10	0.000	0.000	
HZ-00	0.000	0.000	
LZ-00	0.000	0.000	
ZH-10	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C	
ZL-10	0.171 - 0.001*Tr + 0.105*C	0.133 + 0.090*C	
ZH-00	0.174 + 0.088*C	0.108 + 0.074*C	
ZL-00	0.059 - 0.001*Tr + 0.107*C	0.048 + 0.092*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.137*C	0.009 + 0.188*C	
R-1	0.006 + 0.085*C	0.009 + 0.130*C	
F-0	0.007 + 0.137*C	0.009 + 0.189*C	
R-0	0.006 + 0.085*C	0.009 + 0.130*C	
Path TA-IO (for pins LOWEMI TEN T	M )	,	
F-101	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C	
R-101	0.268 + 0.003*Tr + 0.087*C	0.175 + 0.073*C	
F-001	0.058 + 0.107*C	0.047 + 0.092*C	
R-001	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C	
Path TEN-IO (for pins LOWEMI TM)	1	,	
HZ-01	0.000	0.000	



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.174 + 0.088*C	0.108 + 0.002*Tr + 0.074*C
ZL-01	0.059 + 0.107*C	0.048 + 0.092*C
ZH-11	0.272 + 0.001*Tr + 0.087*C	0.178 - 0.002*Tr + 0.073*C
ZL-11	0.172 - 0.003*Tr + 0.105*C	0.133 + 0.090*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.272 + 0.087*C	0.177 + 0.073*C
ZL-011	0.171 - 0.002*Tr + 0.105*C	0.133 + 0.090*C
ZH-110	0.271 + 0.002*Tr + 0.087*C	0.177 + 0.073*C
ZL-110	0.170 + 0.105*C	0.133 + 0.090*C
ZH-001	0.174 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-001	0.059 + 0.107*C	0.048 + 0.092*C
ZH-100	0.175 + 0.001*Tr + 0.088*C	0.108 + 0.074*C
ZL-100	0.059 - 0.001*Tr + 0.107*C	0.047 + 0.001*Tr + 0.092*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.167 - 0.001*Tr + 0.105*C	0.130 + 0.091*C
R-10100	0.269 + 0.087*C	0.175 + 0.073*C
F-00110	0.167 - 0.002*Tr + 0.105*C	0.130 + 0.091*C
R-00110	0.269 + 0.087*C	0.175 + 0.073*C
F-10000	0.057 + 0.107*C	0.047 + 0.092*C
R-10000	0.172 + 0.002*Tr + 0.088*C	0.107 + 0.074*C
F-00010	0.058 + 0.107*C	0.047 + 0.092*C
R-00010	0.173 + 0.088*C	0.107 + 0.074*C

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	9.058e-03
worst 0.90 -40	6.622e-07	3.667e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.517 + 0.314*Tr	0.648 + 0.939*Tr	0.257 + 0.005*Tr	0.336 + 0.006*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149	
For vdde1v8			•		
IO toggling/Output stable	8.245 + 0.045*Tr	9.573 + 0.065*Tr	5.318 + 0.017*Tr	6.107 - 0.012*Tr	
ZI toggling	0.502 + 0.541*Tr	0.654 + 0.880*Tr	0.257 + 0.099*Tr	0.398 + 0.249*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.

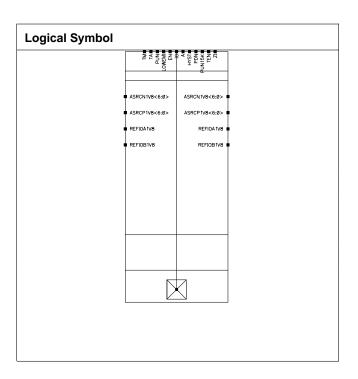
### **Physical Dimensions**

Area(um2): 4252.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10 worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C		
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C		
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C		
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr		
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr		
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr		
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr		
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C		
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C		
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C		
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C		
Path IO-ZI (for pins HYST )				
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C		
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C		
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C		
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C		
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C		
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C		
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr		
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr		
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr		
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr		
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C		
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C		
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C		
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr		
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr		
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr		



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)	'	,		
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr
For vdde1v8			1	
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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 STE.
- 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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
raidilletei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )	'	,			
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )		1			
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	1)	,			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	1)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

## **Transition Time**

Frent	Value (as a function o	as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)				
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )	·			
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



0.000 0.000 0.097 + 0.037*C 0.068 + 0.046*C 0.122 + 0.037*C 0.128 + 0.001*Tr + 0.045*C 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.097 + 0.037*C 0.068 + 0.046*C 0.122 + 0.037*C 0.128 + 0.001*Tr + 0.045*C 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.068 + 0.046*C 0.122 + 0.037*C 0.128 + 0.001*Tr + 0.045*C 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.122 + 0.037*C 0.128 + 0.001*Tr + 0.045*C 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.128 + 0.001*Tr + 0.045*C 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000
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0.000 0.000 0.000 0.000
0.000 0.000 0.000
0.000 0.000
0.000
0.000
0.000
0.123 + 0.037*C
0.128 - 0.001*Tr + 0.045*C
0.123 + 0.037*C
0.128 - 0.002*Tr + 0.045*C
0.097 + 0.037*C
0.069 + 0.046*C
0.097 + 0.037*C
0.069 + 0.046*C
0.125 + 0.045*C
0.121 + 0.037*C
0.124 + 0.045*C
0.121 + 0.037*C
0.066 + 0.046*C
0.095 + 0.037*C
0.067 + 0.046*C
0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i alametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	of C in pF and Tr in nS)	
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )			
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C	
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C	
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C	
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr	
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr	
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr	
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr	
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C	
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C	
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C	
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C	
Path IO-ZI (for pins HYST )			
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C	
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C	
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C	
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM	)		
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C	
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C	
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C	
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C	
Path TEN-IO (for pins LOWEMI TM )			
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr	
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr	
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr	
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr	
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C	
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C	
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C	
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C	
Path TM-IO (for pins EN LOWEMI TEN	)		
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr	
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr	
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr	



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)	'	,		
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8			1		
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

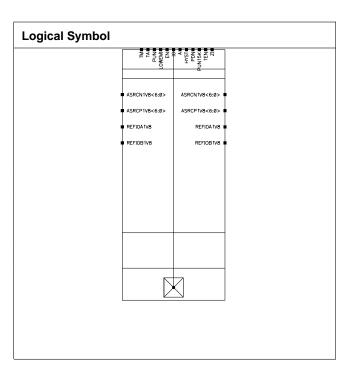
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	of C in pF and Tr in nS)	
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )	'	,	
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C	
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C	
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C	
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr	
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr	
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr	
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr	
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C	
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C	
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C	
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C	
Path IO-ZI (for pins HYST )		1	
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C	
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C	
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C	
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM	1)	,	
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C	
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C	
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C	
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C	
Path TEN-IO (for pins LOWEMI TM )			
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr	
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr	
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr	
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr	
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C	
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C	
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C	
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C	
Path TM-IO (for pins EN LOWEMI TEN	1)		
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr	
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr	
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr	



LZ-110	0.413 + 0.267*Tr		
HZ-001	0.594 + 0.188*Tr		
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr	
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr	
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr	
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C	
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C	
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C	
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C	
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C	
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C	
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C	
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C	
Path TM-IO (for pins A EN LOWEMI TA TE	N)		
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C	
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C	
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C	
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C	
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C	
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C	
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C	
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C	

## **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Ener	gy (uW/MHz)	
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )					
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	)				
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM	)				
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN T	M)				
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C	0.067 + 0.046*C			
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C			
Path TEN-IO (for pins LOWEMI TM)	'	,			
HZ-01	0.000	0.000			



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr
For vdde1v8			1	
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )	I				
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM					
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



LZ-110	0.413 + 0.267*Tr		
HZ-001	0.594 + 0.188*Tr		
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr	
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr	
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr	
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C	
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C	
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C	
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C	
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C	
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C	
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C	
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C	
Path TM-IO (for pins A EN LOWEMI TA TE	N)		
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C	
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C	
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C	
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C	
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C	
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C	
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C	
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C	

## **Transition Time**

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM	)	
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C
R-010	0.173 + 0.044*C	0.121 + 0.037*C
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.188*C
R-1	0.006 + 0.085*C	0.009 + 0.129*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN T	M )	
F-101	0.160 + 0.053*C	0.124 + 0.045*C
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C
F-001	0.085 + 0.053*C	0.067 + 0.046*C
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala		rgy (uW/MHz)		
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd		•	'	
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr
For vdde1v8	1	1	1	1
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
raiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )					
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	)				
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM	)				
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN T	M)				
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C	0.067 + 0.046*C			
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C			
Path TEN-IO (for pins LOWEMI TM)	'	,			
HZ-01	0.000	0.000			



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8			1			
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

Pin	Parameter	Va	alue
FIII	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Frant	Value (as a function o	of C in pF and Tr in nS)	
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM	)	,	
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C	
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C	
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C	
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C	
Path EN-IO (for pins LOWEMI TM)		,	
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr	
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr	
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr	
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr	
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C	
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C	
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C	
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C	
Path IO-ZI (for pins HYST )			
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C	
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C	
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C	
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN T	M )		
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C	
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C	
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C	
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C	
Path TEN-IO (for pins LOWEMI TM)			
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr	
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr	
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr	
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr	
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C	
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C	
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C	
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C	
Path TM-IO (for pins EN LOWEMI TE	EN )		
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr	
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr	
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr	



LZ-110	0.413 + 0.267*Tr		
HZ-001	0.594 + 0.188*Tr		
LZ-001	0.387 + 0.003*Tr		
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr	
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr	
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C	
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C	
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C	
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C	
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C	
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C	
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C	
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C	
Path TM-IO (for pins A EN LOWEMI TA TE	N)		
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C	
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C	
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C	
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C	
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C	
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C	
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C	
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C	

## **Transition Time**

Frant	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)				
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )		·		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*0		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN TM	И)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM )	,			
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Die Ovele	Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd		•			
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8			1	1	
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
r arameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )					
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	)				
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



0.413 + 0.267*Tr	0.450 + 0.464*Tr
0.594 + 0.188*Tr	0.614 + 0.389*Tr
0.387 + 0.003*Tr	0.406 + 0.254*Tr
0.617 + 0.258*Tr	0.661 + 0.425*Tr
0.413 + 0.267*Tr	0.448 + 0.474*Tr
1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
N)	
1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C
	0.594 + 0.188*Tr  0.387 + 0.003*Tr  0.617 + 0.258*Tr  0.413 + 0.267*Tr  1.129 + 0.205*Tr + 0.053*C  1.106 + 0.201*Tr + 0.067*C  1.143 - 0.035*Tr + 0.053*C  1.121 - 0.019*Tr + 0.067*C  0.984 + 0.206*Tr + 0.052*C  0.799 + 0.200*Tr + 0.065*C  0.999 - 0.035*Tr + 0.052*C  0.815 - 0.021*Tr + 0.065*C  1.093 - 0.030*Tr + 0.065*C  1.146 + 0.259*Tr + 0.053*C  1.123 + 0.023*Tr + 0.053*C  1.123 + 0.023*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C

## **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN TM)					
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C	0.067 + 0.046*C			
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.000	0.000			



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
Table   Tabl	ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.176 + 0.044°C         0.123 + 0.037°C           ZH-011         0.166 - 0.002°Tr + 0.053°C         0.128 - 0.001°Tr + 0.045°C           ZH-110         0.176 - 0.003°Tr + 0.044°C         0.123 + 0.037°C           ZL-110         0.164 + 0.053°C         0.128 - 0.002°Tr + 0.045°C           ZH-001         0.142 + 0.004°Tr + 0.044°C         0.097 + 0.037°C           ZL-001         0.088 - 0.002°Tr + 0.053°C         0.069 + 0.046°C           ZH-100         0.143 - 0.003°Tr + 0.053°C         0.069 + 0.046°C           ZH-100         0.043 - 0.003°Tr + 0.053°C         0.069 + 0.046°C           ZH-100         0.044°C         0.097 + 0.037°C           ZL-100         0.088 - 0.002°Tr + 0.053°C         0.125 + 0.045°C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.069 + 0.046°C           R-10100 <td< td=""><td>ZH-11</td><td>0.176 - 0.002*Tr + 0.044*C</td><td>0.122 + 0.037*C</td></td<>	ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
HZ-011			0.128 + 0.001*Tr + 0.045*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.100         0.000           LZ-101         0.176 + 0.044*C         0.123 + 0.037*C           ZL-011         0.166 - 0.002*Tr + 0.053*C         0.128 - 0.001*Tr + 0.045*C           ZH-110         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZL-101         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-001         0.142 + 0.004*Tr + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           ZH-100         0.043 - 0.003*Tr + 0.044*C         0.097 + 0.037*C           ZL-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         F-10100         0.161 - 0.002*Tr + 0.053*C         0.125 + 0.045*C           R-10100         0.160 + 0.053*C         0.124 + 0.045*C         0.124 + 0.045*C           R-00110         0.160 + 0.053*C         0.124 + 0.045*C         0.124 + 0.045*	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.176 + 0.044*C         0.123 + 0.037*C           ZL-011         0.166 - 0.002*Tr + 0.053*C         0.128 - 0.001*Tr + 0.045*C           ZH-110         0.176 - 0.003*Tr + 0.044*C         0.123 + 0.037*C           ZL-110         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-001         0.142 + 0.004*Tr + 0.044*C         0.097 + 0.037*C           ZL-001         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           ZH-100         0.143 - 0.003*Tr + 0.044*C         0.097 + 0.037*C           ZL-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.161 - 0.002*Tr + 0.053*C         0.125 + 0.045*C           R-10100         0.172 + 0.044*C         0.124 + 0.045*C           R-00110         0.160 + 0.053*C         0.124 + 0.045*C           F-00010         0.085 + 0.001*Tr + 0.053*C         0.066 + 0.046*C           R-10000         0.085 + 0.001*Tr + 0.053*C         <	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.176 + 0.044*C         0.123 + 0.037*C           ZL-011         0.166 - 0.002*Tr + 0.053*C         0.128 - 0.001*Tr + 0.045*C           ZH-110         0.176 - 0.003*Tr + 0.044*C         0.128 - 0.002*Tr + 0.045*C           ZL-110         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-001         0.142 + 0.004*Tr + 0.044*C         0.097 + 0.037*C           ZL-001         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           ZH-100         0.143 - 0.003*Tr + 0.044*C         0.097 + 0.037*C           ZL-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.161 - 0.002*Tr + 0.053*C         0.125 + 0.045*C           R-10100         0.172 + 0.044*C         0.121 + 0.037*C           F-00110         0.160 + 0.053*C         0.124 + 0.045*C           R-00110         0.173 + 0.044*C         0.121 + 0.037*C           F-10000         0.085 + 0.001*Tr + 0.053*C         0.066 + 0.046*C           R-10000         0.040 + 0.002*Tr + 0.004*C         0.066 + 0.046*C	LZ-110	0.000	0.000
HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.176 + 0.044*C         0.123 + 0.037*C           ZL-011         0.166 - 0.002*Tr + 0.053*C         0.128 - 0.001*Tr + 0.045*C           ZH-110         0.176 - 0.003*Tr + 0.044*C         0.123 + 0.037*C           ZL-110         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-001         0.142 + 0.004*Tr + 0.044*C         0.097 + 0.037*C           ZL-001         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           ZH-100         0.143 - 0.003*Tr + 0.044*C         0.097 + 0.037*C           ZL-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.161 - 0.002*Tr + 0.053*C         0.125 + 0.045*C           R-10100         0.160 + 0.053*C         0.121 + 0.037*C           F-00110         0.160 + 0.053*C         0.124 + 0.045*C           R-00110         0.173 + 0.044*C         0.121 + 0.037*C           F-10000         0.085 + 0.001*Tr + 0.053*C         0.066 + 0.046*C           R-10000         0.140 + 0.002*Tr + 0.044*C         0.095 + 0.037*C	HZ-001	0.000	0.000
LZ-100         0.000         0.000           ZH-011         0.176 + 0.044*C         0.123 + 0.037*C           ZL-011         0.166 - 0.002*Tr + 0.053*C         0.128 - 0.001*Tr + 0.045*C           ZH-110         0.176 - 0.003*Tr + 0.044*C         0.123 + 0.037*C           ZL-110         0.164 + 0.053*C         0.128 - 0.002*Tr + 0.045*C           ZH-001         0.142 + 0.004*Tr + 0.044*C         0.097 + 0.037*C           ZL-001         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           ZH-100         0.143 - 0.003*Tr + 0.044*C         0.097 + 0.037*C           ZL-100         0.088 - 0.002*Tr + 0.053*C         0.069 + 0.046*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.161 - 0.002*Tr + 0.053*C         0.125 + 0.045*C           R-10100         0.167 + 0.044*C         0.121 + 0.037*C           F-00110         0.160 + 0.053*C         0.124 + 0.045*C           R-00110         0.173 + 0.044*C         0.121 + 0.037*C           F-10000         0.085 + 0.001*Tr + 0.053*C         0.066 + 0.046*C           R-10000         0.140 + 0.002*Tr + 0.044*C         0.095 + 0.037*C           F-00010         0.085 - 0.003*Tr + 0.044*C         0.067 + 0.046*C	LZ-001	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011       0.166 - 0.002*Tr + 0.053*C       0.128 - 0.001*Tr + 0.045*C         ZH-110       0.176 - 0.003*Tr + 0.044*C       0.123 + 0.037*C         ZL-110       0.164 + 0.053*C       0.128 - 0.002*Tr + 0.045*C         ZH-001       0.142 + 0.004*Tr + 0.044*C       0.097 + 0.037*C         ZL-001       0.088 - 0.002*Tr + 0.053*C       0.069 + 0.046*C         ZH-100       0.143 - 0.003*Tr + 0.044*C       0.097 + 0.037*C         ZL-100       0.088 - 0.002*Tr + 0.053*C       0.069 + 0.046*C         Path TM-IO (for pins A EN LOWEMI TA TEN )         F-10100       0.161 - 0.002*Tr + 0.053*C       0.125 + 0.045*C         R-10100       0.172 + 0.044*C       0.121 + 0.037*C         F-00110       0.160 + 0.053*C       0.124 + 0.045*C         R-00110       0.173 + 0.044*C       0.121 + 0.037*C         F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.003*C       0.067 + 0.046*C	LZ-100	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
F-10100       0.161 - 0.002*Tr + 0.053*C       0.125 + 0.045*C         R-10100       0.172 + 0.044*C       0.121 + 0.037*C         F-00110       0.160 + 0.053*C       0.124 + 0.045*C         R-00110       0.173 + 0.044*C       0.121 + 0.037*C         F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.053*C       0.067 + 0.046*C	ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
R-10100       0.172 + 0.044*C       0.121 + 0.037*C         F-00110       0.160 + 0.053*C       0.124 + 0.045*C         R-00110       0.173 + 0.044*C       0.121 + 0.037*C         F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.053*C       0.067 + 0.046*C	Path TM-IO (for pins A EN LOWEMI T	TA TEN)	
F-00110       0.160 + 0.053*C       0.124 + 0.045*C         R-00110       0.173 + 0.044*C       0.121 + 0.037*C         F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.053*C       0.067 + 0.046*C	F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-00110       0.173 + 0.044*C       0.121 + 0.037*C         F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.053*C       0.067 + 0.046*C	R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-10000       0.085 + 0.001*Tr + 0.053*C       0.066 + 0.046*C         R-10000       0.140 + 0.002*Tr + 0.044*C       0.095 + 0.037*C         F-00010       0.085 - 0.003*Tr + 0.053*C       0.067 + 0.046*C	F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-10000 0.140 + 0.002*Tr + 0.044*C 0.095 + 0.037*C F-00010 0.085 - 0.003*Tr + 0.053*C 0.067 + 0.046*C	R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-00010 0.085 - 0.003*Tr + 0.053*C 0.067 + 0.046*C	F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
	R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
R-00010 0.141 + 0.044*C 0.095 + 0.037*C	F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
	R-00010	0.141 + 0.044*C	0.095 + 0.037*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8			1			
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*Tr		



# BD4SCARUDQPCZ\_EXT\_CSF\_1V8\_FC\_INNER

#### **Cell Description**

### BD4SCARUDQPCZ\_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.

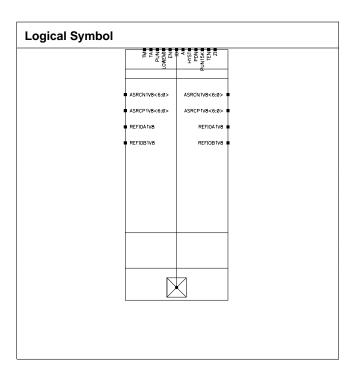
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )	'	,		
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C		
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C		
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C		
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr		
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr		
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr		
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr		
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C		
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C		
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C		
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C		
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C		
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C		
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	1)	,		
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C		
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C		
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C		
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr		
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr		
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr		
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr		
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C		
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C		
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C		
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C		
Path TM-IO (for pins EN LOWEMI TEN	1)			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr		
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr		
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr		



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)	'	,		
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA TI	EN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8			•		
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*Tr	



# BD4SCARUDQPCZ\_EXT\_CSF\_1V8\_FC\_LIN

#### **Cell Description**

#### BD4SCARUDQPCZ\_EXT\_CSF\_1V8\_FC\_LIN

- The cell has "dont\_use" attribute set in the Synopsys STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

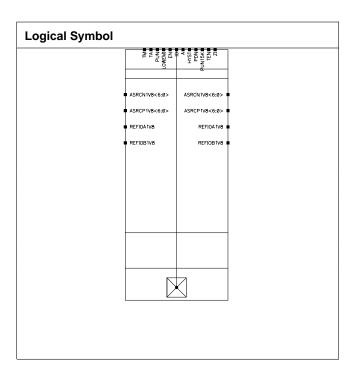
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C		
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C		
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C		
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr		
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr		
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr		
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr		
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C		
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C		
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C		
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C		
Path IO-ZI (for pins HYST )				
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C		
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C		
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C		
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C		
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C		
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C		
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr		
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr		
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr		
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr		
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C		
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C		
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C		
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr		
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr		
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr		



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)	'	,		
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd		•	'		
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8	1	1	1	•	
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )	'	,
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C
Path IO-ZI (for pins HYST )		1
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	1)	,
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C
Path TM-IO (for pins EN LOWEMI TEN	1)	
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr



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LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)	,		
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )	,	,		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )	,			
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TE	EN)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Die Ovele		Internal Energy (uW/MHz)				
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd		1				
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8				1		
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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.

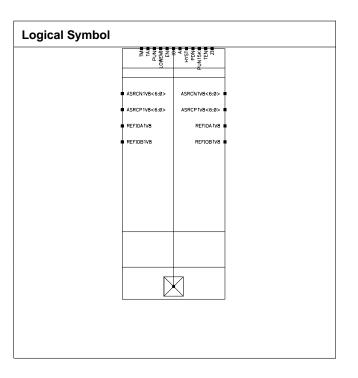
#### **Physical Dimensions**

Area(um2): 4252.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C		
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C		
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C		
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr		
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr		
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr		
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr		
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C		
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C		
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C		
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C		
Path IO-ZI (for pins HYST )				
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C		
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C		
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C		
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C		
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C		
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C		
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr		
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr		
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr		
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr		
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C		
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C		
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C		
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr		
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr		
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr		



0.413 + 0.267*Tr	0.450 + 0.464*Tr
0.594 + 0.188*Tr	0.614 + 0.389*Tr
0.387 + 0.003*Tr	0.406 + 0.254*Tr
0.617 + 0.258*Tr	0.661 + 0.425*Tr
0.413 + 0.267*Tr	0.448 + 0.474*Tr
1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
N)	
1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C
	0.594 + 0.188*Tr  0.387 + 0.003*Tr  0.617 + 0.258*Tr  0.413 + 0.267*Tr  1.129 + 0.205*Tr + 0.053*C  1.106 + 0.201*Tr + 0.067*C  1.143 - 0.035*Tr + 0.053*C  1.121 - 0.019*Tr + 0.067*C  0.984 + 0.206*Tr + 0.052*C  0.799 + 0.200*Tr + 0.065*C  0.999 - 0.035*Tr + 0.052*C  0.815 - 0.021*Tr + 0.065*C  1.093 - 0.030*Tr + 0.065*C  1.146 + 0.259*Tr + 0.053*C  1.123 + 0.023*Tr + 0.053*C  1.123 + 0.023*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C

### **Transition Time**

Event	Value (as a function of C in pF and Tr in nS)				
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )					
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN TM)					
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C				
R-001	0.140 + 0.001*Tr + 0.044*C				
Path TEN-IO (for pins LOWEMI TM )	Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000			



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

### **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)					
Fill Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8				•		
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

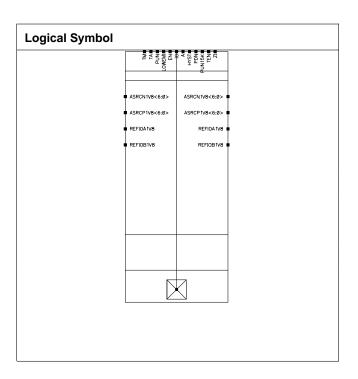
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
r arameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Value		
PIII	Fili Falallielei		worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65	



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Frank	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM	)				
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )		l			
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN T	M )	1			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM)		1			
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TE	EN )	1			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



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0.413 + 0.267*Tr	0.450 + 0.464*Tr
0.594 + 0.188*Tr	0.614 + 0.389*Tr
0.387 + 0.003*Tr	0.406 + 0.254*Tr
0.617 + 0.258*Tr	0.661 + 0.425*Tr
0.413 + 0.267*Tr	0.448 + 0.474*Tr
1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
N)	
1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C
	0.594 + 0.188*Tr  0.387 + 0.003*Tr  0.617 + 0.258*Tr  0.413 + 0.267*Tr  1.129 + 0.205*Tr + 0.053*C  1.106 + 0.201*Tr + 0.067*C  1.143 - 0.035*Tr + 0.053*C  1.121 - 0.019*Tr + 0.067*C  0.984 + 0.206*Tr + 0.052*C  0.799 + 0.200*Tr + 0.065*C  0.999 - 0.035*Tr + 0.052*C  0.815 - 0.021*Tr + 0.065*C  1.093 - 0.030*Tr + 0.067*C  1.146 + 0.259*Tr + 0.053*C  1.076 + 0.216*Tr + 0.065*C  0.795 - 0.027*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C  0.780 + 0.216*Tr + 0.065*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM	)	,			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM)					
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )	,				
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN T	M)				
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C	0.067 + 0.046*C			
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C			
Path TEN-IO (for pins LOWEMI TM)					
HZ-01	0.000	0.000			



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)					
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8			•			
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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.

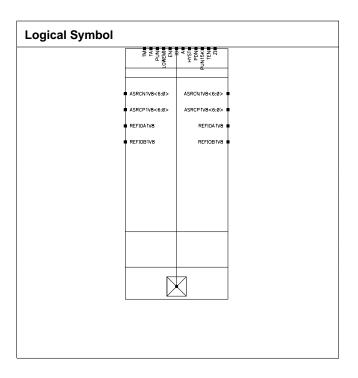
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C		
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C		
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C		
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr		
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr		
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr		
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr		
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C		
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C		
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C		
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C		
Path IO-ZI (for pins HYST )				
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C		
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C		
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C		
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C		
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C		
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C		
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr		
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr		
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr		
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr		
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C		
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C		
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C		
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr		
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr		
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr		



LZ-110	0.413 + 0.267*Tr	0.450 + 0.464*Tr
HZ-001	0.594 + 0.188*Tr	0.614 + 0.389*Tr
LZ-001	0.387 + 0.003*Tr	0.406 + 0.254*Tr
HZ-100	0.617 + 0.258*Tr	0.661 + 0.425*Tr
LZ-100	0.413 + 0.267*Tr	0.448 + 0.474*Tr
ZH-011	1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
ZL-011	1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
ZH-110	1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
ZL-110	1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
ZH-001	0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
ZL-001	0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
ZH-100	0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
ZL-100	0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
R-10100	1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
F-00110	1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
R-00110	1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
F-10000	0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
R-10000	1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
F-00010	0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
R-00010	0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C		
R-010	0.173 + 0.044*C	0.121 + 0.037*C		
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C		
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C		
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C		
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C		
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.188*C		
R-1	0.006 + 0.085*C	0.009 + 0.129*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.160 + 0.053*C	0.124 + 0.045*C		
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C		
F-001	0.085 + 0.053*C	0.067 + 0.046*C		
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C		
Path TEN-IO (for pins LOWEMI TM)	'	,		
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI TA	ΓEN )	
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr	
For vdde1v8			1		
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr	
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

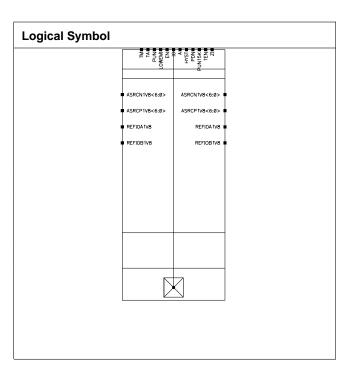
#### **Physical Dimensions**

Area(um2): 8307.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0378	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.4576	1.4001
IO Max Load	101.458	101.400
LOWEMI Input Cap.	0.0263	0.0263
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0253	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM )	'	,			
F-010	1.082 + 0.193*Tr + 0.067*C	1.148 + 0.386*Tr + 0.058*C			
R-010	1.125 + 0.010*Tr + 0.053*C	1.115 + 0.245*Tr + 0.046*C			
F-000	0.784 + 0.196*Tr + 0.065*C	0.842 + 0.387*Tr + 0.056*C			
R-000	0.983 + 0.011*Tr + 0.052*C	0.961 + 0.246*Tr + 0.045*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.598 + 0.141*Tr	0.626 + 0.375*Tr			
LZ-10	0.545 + 0.141*Tr	0.589 + 0.376*Tr			
HZ-00	0.601 + 0.133*Tr	0.625 + 0.376*Tr			
LZ-00	0.545 + 0.140*Tr	0.589 + 0.376*Tr			
ZH-10	1.133 + 0.166*Tr + 0.053*C	1.155 + 0.474*Tr + 0.046*C			
ZL-10	1.108 + 0.165*Tr + 0.067*C	1.189 + 0.476*Tr + 0.058*C			
ZH-00	0.989 + 0.168*Tr + 0.052*C	0.999 + 0.477*Tr + 0.045*C			
ZL-00	0.802 + 0.164*Tr + 0.065*C	0.877 + 0.475*Tr + 0.056*C			
Path IO-ZI (for pins HYST )		1			
F-1	0.417 + 0.196*Tr + 0.186*C	0.466 + 0.250*Tr + 0.257*C			
R-1	0.436 + 0.181*Tr + 0.127*C	0.463 + 0.264*Tr + 0.160*C			
F-0	0.379 + 0.050*Tr + 0.176*C	0.436 + 0.062*Tr + 0.240*C			
R-0	0.394 + 0.044*Tr + 0.124*C	0.451 + 0.063*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	1)	,			
F-101	1.082 + 0.195*Tr + 0.067*C	1.148 + 0.390*Tr + 0.058*C			
R-101	1.125 + 0.009*Tr + 0.053*C	1.111 + 0.251*Tr + 0.046*C			
F-001	0.785 + 0.196*Tr + 0.065*C	0.843 + 0.390*Tr + 0.056*C			
R-001	0.983 + 0.010*Tr + 0.052*C	0.958 + 0.250*Tr + 0.045*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.599 + 0.138*Tr	0.624 + 0.378*Tr			
LZ-01	0.544 + 0.141*Tr	0.588 + 0.379*Tr			
HZ-11	0.598 + 0.141*Tr	0.624 + 0.377*Tr			
LZ-11	0.545 + 0.141*Tr	0.588 + 0.379*Tr			
ZH-01	0.990 + 0.168*Tr + 0.052*C	1.001 + 0.477*Tr + 0.045*C			
ZL-01	0.803 + 0.164*Tr + 0.065*C	0.879 + 0.473*Tr + 0.056*C			
ZH-11	1.134 + 0.168*Tr + 0.053*C	1.155 + 0.475*Tr + 0.046*C			
ZL-11	1.108 + 0.166*Tr + 0.067*C	1.190 + 0.476*Tr + 0.058*C			
Path TM-IO (for pins EN LOWEMI TEN	1)				
HZ-011	0.593 + 0.188*Tr	0.613 + 0.391*Tr			
LZ-011	0.388 + 0.015*Tr	0.407 + 0.247*Tr			
HZ-110	0.618 + 0.260*Tr	0.661 + 0.424*Tr			



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0.413 + 0.267*Tr	0.450 + 0.464*Tr
0.594 + 0.188*Tr	0.614 + 0.389*Tr
0.387 + 0.003*Tr	0.406 + 0.254*Tr
0.617 + 0.258*Tr	0.661 + 0.425*Tr
0.413 + 0.267*Tr	0.448 + 0.474*Tr
1.129 + 0.205*Tr + 0.053*C	1.142 + 0.483*Tr + 0.046*C
1.106 + 0.201*Tr + 0.067*C	1.177 + 0.479*Tr + 0.058*C
1.143 - 0.035*Tr + 0.053*C	1.169 + 0.222*Tr + 0.046*C
1.121 - 0.019*Tr + 0.067*C	1.209 + 0.240*Tr + 0.058*C
0.984 + 0.206*Tr + 0.052*C	0.986 + 0.482*Tr + 0.045*C
0.799 + 0.200*Tr + 0.065*C	0.865 + 0.479*Tr + 0.056*C
0.999 - 0.035*Tr + 0.052*C	1.015 + 0.218*Tr + 0.045*C
0.815 - 0.021*Tr + 0.065*C	0.897 + 0.236*Tr + 0.056*C
N)	
1.093 - 0.030*Tr + 0.067*C	1.157 + 0.225*Tr + 0.058*C
1.146 + 0.259*Tr + 0.053*C	1.148 + 0.440*Tr + 0.046*C
1.076 + 0.216*Tr + 0.067*C	1.135 + 0.367*Tr + 0.058*C
1.123 + 0.023*Tr + 0.053*C	1.106 + 0.230*Tr + 0.046*C
0.795 - 0.027*Tr + 0.065*C	0.850 + 0.229*Tr + 0.056*C
1.004 + 0.259*Tr + 0.052*C	0.995 + 0.441*Tr + 0.045*C
0.780 + 0.216*Tr + 0.065*C	0.828 + 0.367*Tr + 0.056*C
0.980 + 0.025*Tr + 0.052*C	0.954 + 0.228*Tr + 0.045*C
	0.594 + 0.188*Tr  0.387 + 0.003*Tr  0.617 + 0.258*Tr  0.413 + 0.267*Tr  1.129 + 0.205*Tr + 0.053*C  1.106 + 0.201*Tr + 0.067*C  1.143 - 0.035*Tr + 0.053*C  1.121 - 0.019*Tr + 0.067*C  0.984 + 0.206*Tr + 0.052*C  0.799 + 0.200*Tr + 0.065*C  0.999 - 0.035*Tr + 0.052*C  0.815 - 0.021*Tr + 0.065*C  1.093 - 0.030*Tr + 0.067*C  1.146 + 0.259*Tr + 0.053*C  1.076 + 0.216*Tr + 0.065*C  0.795 - 0.027*Tr + 0.065*C  1.004 + 0.259*Tr + 0.065*C  0.780 + 0.216*Tr + 0.065*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)			
Event	best 1.10 125	worst 0.90 -40			
Path A-IO (for pins EN LOWEMI TM	)	,			
F-010	0.161 - 0.003*Tr + 0.053*C	0.124 + 0.045*C			
R-010	0.173 + 0.044*C	0.121 + 0.037*C			
F-000	0.085 + 0.053*C	0.066 + 0.001*Tr + 0.046*C			
R-000	0.140 + 0.004*Tr + 0.044*C	0.095 + 0.002*Tr + 0.037*C			
Path EN-IO (for pins LOWEMI TM )	,	,			
HZ-10	0.000	0.000			
LZ-10	0.000	0.000			
HZ-00	0.000	0.000			
LZ-00	0.000	0.000			
ZH-10	0.176 - 0.003*Tr + 0.044*C	0.123 - 0.003*Tr + 0.037*C			
ZL-10	0.165 - 0.002*Tr + 0.053*C	0.128 - 0.002*Tr + 0.045*C			
ZH-00	0.142 + 0.044*C	0.097 + 0.002*Tr + 0.037*C			
ZL-00	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C			
Path IO-ZI (for pins HYST )	,				
F-1	0.007 + 0.137*C	0.009 + 0.188*C			
R-1	0.006 + 0.085*C	0.009 + 0.129*C			
F-0	0.007 + 0.137*C	0.009 + 0.189*C			
R-0	0.006 + 0.084*C	0.008 + 0.131*C			
Path TA-IO (for pins LOWEMI TEN T	M)				
F-101	0.160 + 0.053*C	0.124 + 0.045*C			
R-101	0.174 - 0.003*Tr + 0.044*C	0.120 + 0.037*C			
F-001	0.085 + 0.053*C	0.067 + 0.046*C			
R-001	0.140 + 0.001*Tr + 0.044*C	0.095 + 0.001*Tr + 0.037*C			
Path TEN-IO (for pins LOWEMI TM)					
HZ-01	0.000	0.000			



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.143 + 0.001*Tr + 0.044*C	0.097 + 0.037*C
ZL-01	0.088 - 0.002*Tr + 0.053*C	0.068 + 0.046*C
ZH-11	0.176 - 0.002*Tr + 0.044*C	0.122 + 0.037*C
ZL-11	0.165 - 0.002*Tr + 0.053*C	0.128 + 0.001*Tr + 0.045*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.176 + 0.044*C	0.123 + 0.037*C
ZL-011	0.166 - 0.002*Tr + 0.053*C	0.128 - 0.001*Tr + 0.045*C
ZH-110	0.176 - 0.003*Tr + 0.044*C	0.123 + 0.037*C
ZL-110	0.164 + 0.053*C	0.128 - 0.002*Tr + 0.045*C
ZH-001	0.142 + 0.004*Tr + 0.044*C	0.097 + 0.037*C
ZL-001	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
ZH-100	0.143 - 0.003*Tr + 0.044*C	0.097 + 0.037*C
ZL-100	0.088 - 0.002*Tr + 0.053*C	0.069 + 0.046*C
Path TM-IO (for pins A EN LOWEMI		
F-10100	0.161 - 0.002*Tr + 0.053*C	0.125 + 0.045*C
R-10100	0.172 + 0.044*C	0.121 + 0.037*C
F-00110	0.160 + 0.053*C	0.124 + 0.045*C
R-00110	0.173 + 0.044*C	0.121 + 0.037*C
F-10000	0.085 + 0.001*Tr + 0.053*C	0.066 + 0.046*C
R-10000	0.140 + 0.002*Tr + 0.044*C	0.095 + 0.037*C
F-00010	0.085 - 0.003*Tr + 0.053*C	0.067 + 0.046*C
R-00010	0.141 + 0.044*C	0.095 + 0.037*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.094e-02
worst 0.90 -40	6.622e-07	3.711e-06

## Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)					
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.515 + 0.314*Tr	0.646 + 0.941*Tr	0.258	0.335 + 0.008*Tr		
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.149 + 0.001*Tr		
For vdde1v8			•			
IO toggling/Output stable	8.825 - 0.031*Tr	10.224 - 0.023*Tr	5.769 + 0.009*Tr	6.620 - 0.002*Tr		
ZI toggling	0.507 + 0.549*Tr	0.654 + 0.890*Tr	0.258 + 0.098*Tr	0.398 + 0.252*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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

Event	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )			
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C	
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C	
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C	
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C	
Path EN-IO (for pins LOWEMI TM )		1	
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr	
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr	
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr	
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr	
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C	
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C	
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C	
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C	
Path IO-ZI (for pins HYST )		1	
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C	
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C	
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C	
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM	)	1	
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C	
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C	
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C	
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C	
Path TEN-IO (for pins LOWEMI TM )		1	
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr	
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr	
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr	
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr	
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C	
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C	
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C	
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C	
Path TM-IO (for pins EN LOWEMI TEN	)		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr	
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr	
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr	



0.431 + 0.267*Tr	0.459 + 0.461*Tr
0.636 + 0.187*Tr	0.644 + 0.388*Tr
0.404 - 0.009*Tr	0.419 + 0.243*Tr
0.661 + 0.254*Tr	0.691 + 0.419*Tr
0.430 + 0.267*Tr	0.457 + 0.462*Tr
1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
N)	
1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C
	0.636 + 0.187*Tr  0.404 - 0.009*Tr  0.661 + 0.254*Tr  0.430 + 0.267*Tr  1.234 + 0.204*Tr + 0.038*C  1.239 + 0.206*Tr + 0.046*C  1.246 - 0.029*Tr + 0.038*C  1.257 - 0.025*Tr + 0.046*C  0.939 + 0.203*Tr + 0.037*C  0.880 + 0.201*Tr + 0.045*C  0.953 - 0.036*Tr + 0.037*C  0.897 - 0.022*Tr + 0.045*C  EN )  1.228 - 0.033*Tr + 0.046*C  1.252 + 0.261*Tr + 0.038*C  1.210 + 0.219*Tr + 0.046*C  1.228 + 0.021*Tr + 0.046*C  1.228 + 0.021*Tr + 0.046*C  0.876 - 0.026*Tr + 0.045*C  0.960 + 0.255*Tr + 0.045*C

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN TI	М)	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Pin Cycle	Internal Energy (uW/MHz)				
Fill Cycle	best 1.10 125 (Min values)	,		worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr	
For vdde1v8				•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr	
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

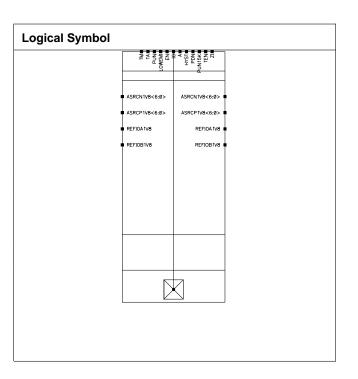
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Din Dorometer	Value		
FIII	Parameter	best 1.10	worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65	



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )	'	,		
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )				
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	N)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Event	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM	)	,
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN T	M)	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr	
For vdde1v8			•		
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr	
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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 STE.
- 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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)	,		
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C		
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C		
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C		
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C		
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C		
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.189*C		
R-1	0.006 + 0.085*C	0.009 + 0.128*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C		
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C		
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-11         0.193 - 0.006*Tr + 0.037*C         0.153 + 0.002*Tr + 0.032*C           Path TM-IO (for pins EN LOWEMI TEN )           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZL-001         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-001         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           ZL-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C <td>ZL-01</td> <td>0.104 - 0.001*Tr + 0.037*C</td> <td>0.082 + 0.032*C</td>	ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN)         0.000         0.000           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZH-011         0.200 + 0.008*Tr + 0.032*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C	ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
HZ-011			0.153 + 0.002*Tr + 0.032*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 - 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.197 - 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.083 + 0.002*Tr + 0.032*C           ZH-100         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.032*C         0.139 + 0.027*C	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 + 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-10100         0.188 + 0.009*Tr + 0.032*C         0.159 + 0.032*C           R-00110         0.198 + 0.009*Tr + 0.032*C         0.159 + 0.002*Tr + 0.032*C           R-00100         0.198 + 0.006*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.198 + 0.009*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-00100         0.099 + 0.005*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.188 + 0.002*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.003*Tr + 0.032*C	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.003*Tr + 0.032*C	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.192 - 0.002*Tr + 0.037*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
R-10100       0.198 + 0.009*Tr + 0.032*C       0.139 + 0.027*C         F-00110       0.187 + 0.037*C       0.150 + 0.032*C         R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C			
F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C	R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-10000 0.126 - 0.006*Tr + 0.032*C 0.083 + 0.027*C F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
	R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
R-00010 0.125 + 0.002*Tr + 0.032*C 0.083 + 0.027*C	F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
	R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

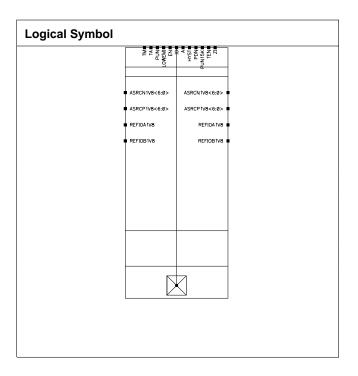
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )	'	,		
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )				
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	N)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



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0.431 + 0.267*Tr	0.459 + 0.461*Tr
0.636 + 0.187*Tr	0.644 + 0.388*Tr
0.404 - 0.009*Tr	0.419 + 0.243*Tr
0.661 + 0.254*Tr	0.691 + 0.419*Tr
0.430 + 0.267*Tr	0.457 + 0.462*Tr
1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
N)	
1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C
	0.636 + 0.187*Tr  0.404 - 0.009*Tr  0.661 + 0.254*Tr  0.430 + 0.267*Tr  1.234 + 0.204*Tr + 0.038*C  1.239 + 0.206*Tr + 0.046*C  1.246 - 0.029*Tr + 0.038*C  1.257 - 0.025*Tr + 0.046*C  0.939 + 0.203*Tr + 0.037*C  0.880 + 0.201*Tr + 0.045*C  0.953 - 0.036*Tr + 0.037*C  0.897 - 0.022*Tr + 0.045*C  EN )  1.228 - 0.033*Tr + 0.046*C  1.252 + 0.261*Tr + 0.038*C  1.210 + 0.219*Tr + 0.046*C  1.228 + 0.021*Tr + 0.046*C  1.228 + 0.021*Tr + 0.046*C  0.876 - 0.026*Tr + 0.045*C  0.960 + 0.255*Tr + 0.045*C

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C		
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C		
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C		
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C		
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C		
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.189*C		
R-1	0.006 + 0.085*C	0.009 + 0.128*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN TI	М)			
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C		
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C		
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-11         0.193 - 0.006*Tr + 0.037*C         0.153 + 0.002*Tr + 0.032*C           Path TM-IO (for pins EN LOWEMI TEN )           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 + 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZL-001         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-001         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           ZL-100         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C <td>ZL-01</td> <td>0.104 - 0.001*Tr + 0.037*C</td> <td>0.082 + 0.032*C</td>	ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN)         0.000         0.000           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZH-011         0.200 + 0.008*Tr + 0.032*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.126 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.139 + 0.002*Tc	ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
HZ-011			0.153 + 0.002*Tr + 0.032*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 - 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-1010         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.032*C         0.139 + 0.027*C	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-10100         0.188 + 0.009*Tr + 0.032*C         0.150 + 0.032*C           R-00110         0.198 + 0.009*Tr + 0.032*C         0.150 + 0.032*C           F-00010         0.198 + 0.006*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           F-00010         0.126 - 0.006*Tr + 0.032*C	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         Tender of the company of	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.188 + 0.002*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           F-00010         0.100 + 0.0037*C         0.080 + 0.003*Tr + 0.032*C	LZ-001	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.188 + 0.002*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.003*Tr + 0.032*C	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.192 - 0.002*Tr + 0.037*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
R-10100       0.198 + 0.009*Tr + 0.032*C       0.139 + 0.027*C         F-00110       0.187 + 0.037*C       0.150 + 0.032*C         R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C			
F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C	R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-10000 0.099 + 0.005*Tr + 0.037*C 0.080 + 0.002*Tr + 0.032*C  R-10000 0.126 - 0.006*Tr + 0.032*C 0.083 + 0.027*C  F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-10000 0.126 - 0.006*Tr + 0.032*C 0.083 + 0.027*C F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
	R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
R-00010 0.125 + 0.002*Tr + 0.032*C 0.083 + 0.027*C	F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
	R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*Tr



# BD6SCARUDQPCL\_EXT\_CSF\_1V8\_CL\_LIN

#### **Cell Description**

### BD6SCARUDQPCL\_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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN TI	М)	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI 7	TA TEN )	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Pin Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr	
For vdde1v8	1	1			
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr	
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

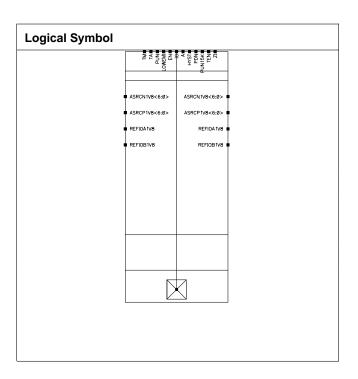
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	lue
PIII	Parameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Eveni	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		I .		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	И)	I		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TE	N)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Front	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )	'	
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM)		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )	·	
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Ener	gy (uW/MHz)	
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

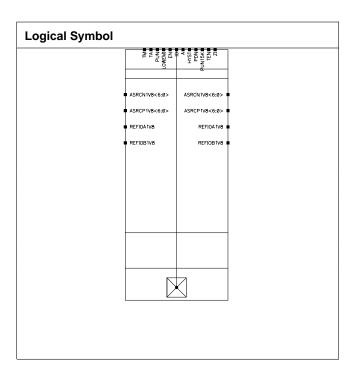
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	lue
FIII	Parameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C
Path IO-ZI (for pins HYST )		1
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	1
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Event	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )	'		
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C	
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C	
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C	
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	0.000	0.000	
LZ-10	0.000	0.000	
HZ-00	0.000	0.000	
LZ-00	0.000	0.000	
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C	
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C	
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C	
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C	
Path IO-ZI (for pins HYST )	·		
F-1	0.007 + 0.137*C	0.009 + 0.189*C	
R-1	0.006 + 0.085*C	0.009 + 0.128*C	
F-0	0.007 + 0.137*C	0.009 + 0.189*C	
R-0	0.006 + 0.084*C	0.008 + 0.131*C	
Path TA-IO (for pins LOWEMI TEN TM )	·		
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C	
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C	
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C	
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C	
Path TEN-IO (for pins LOWEMI TM )			
HZ-01	0.000	0.000	



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-11         0.193 - 0.006*Tr + 0.037*C         0.153 + 0.002*Tr + 0.032*C           Path TM-IO (for pins EN LOWEMI TEN )           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZL-001         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-001         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           ZL-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C <td>ZL-01</td> <td>0.104 - 0.001*Tr + 0.037*C</td> <td>0.082 + 0.032*C</td>	ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN)         0.000         0.000           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZH-011         0.200 + 0.008*Tr + 0.032*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C	ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
HZ-011			0.153 + 0.002*Tr + 0.032*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 - 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.197 - 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.083 + 0.002*Tr + 0.032*C           ZH-100         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.032*C         0.139 + 0.027*C	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.192 + 0.002*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-10100         0.188 + 0.009*Tr + 0.032*C         0.159 + 0.032*C           R-00110         0.198 + 0.009*Tr + 0.032*C         0.159 + 0.002*Tr + 0.032*C           R-00100         0.198 + 0.006*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.198 + 0.009*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-00100         0.099 + 0.005*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           R-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.188 + 0.002*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.003*Tr + 0.032*C	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.080 + 0.003*Tr + 0.032*C	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.192 - 0.002*Tr + 0.037*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
R-10100       0.198 + 0.009*Tr + 0.032*C       0.139 + 0.027*C         F-00110       0.187 + 0.037*C       0.150 + 0.032*C         R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C			
F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C	R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-10000 0.126 - 0.006*Tr + 0.032*C 0.083 + 0.027*C F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
	R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
R-00010 0.125 + 0.002*Tr + 0.032*C 0.083 + 0.027*C	F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
	R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

# Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

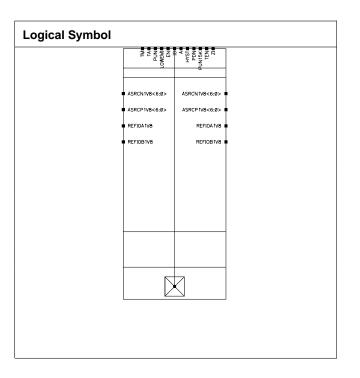
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )				
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN)	)			
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C		
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C		
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C		
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C		
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C		
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.137*C	0.009 + 0.189*C		
R-1	0.006 + 0.085*C	0.009 + 0.128*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C		
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C		
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

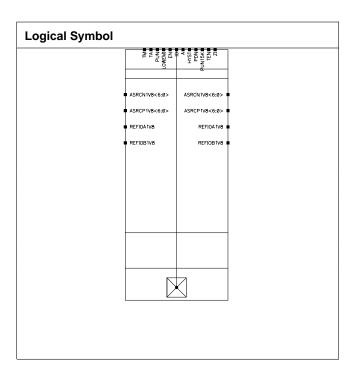
#### **Physical Dimensions**

Area(um2): 4252.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	e(pF)
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	lue
PIII	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)				
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C		
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C		
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C		
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C		
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C		
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C		
Path IO-ZI (for pins HYST )	·			
F-1	0.007 + 0.137*C	0.009 + 0.189*C		
R-1	0.006 + 0.085*C	0.009 + 0.128*C		
F-0	0.007 + 0.137*C	0.009 + 0.189*C		
R-0	0.006 + 0.084*C	0.008 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	М)			
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C		
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C		
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C		
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI TA 1		•
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

Pin Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr	
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr	
For vdde1v8	1	1			
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr	
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i alametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin Paramete	Parameter	Va	alue
FIII	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )	'	,		
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )				
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	N)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



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LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

## **Transition Time**

Frant	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM)	,	
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN TM	<b>d</b> )	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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.

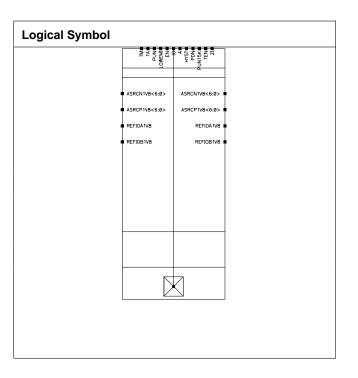
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

## **Transition Time**

Front	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM)		
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )	·	
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN T	М)	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.000	0.000



HZ-11	LZ-01	0.000	0.000
ZH-01	HZ-11	0.000	0.000
ZL-01	LZ-11	0.000	0.000
ZH-11	ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
Table   Tabl	ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-100         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         F-10100         0.188 + 0.002*Tr + 0.032*C         0.139 + 0.027*C           R-00110         0.188 + 0.002*Tr +	ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
HZ-011			0.153 + 0.002*Tr + 0.032*C
LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-101         0.192 - 0.002*Tr + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-100         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.032*C           ZH-100         0.103 + 0.037*C         0.085 + 0.003*Tr + 0.032*C           ZL-100         0.103 + 0.037*C         0.085 + 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.188 + 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-00110         <	Path TM-IO (for pins EN LOWEMI TEI	N)	
HZ-110	HZ-011		0.000
LZ-110         0.000         0.000           HZ-001         0.000         0.000           LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.027*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-10100         0.188 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           F-00110         0.187 + 0.037*C         0.150 + 0.032*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           F-00010 <td>LZ-011</td> <td>0.000</td> <td>0.000</td>	LZ-011	0.000	0.000
HZ-001	HZ-110	0.000	0.000
LZ-001         0.000         0.000           HZ-100         0.000         0.000           LZ-100         0.000         0.000           ZH-011         0.200 + 0.007*Tr + 0.032*C         0.141 + 0.027*C           ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.032*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.085 - 0.003*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.032*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.198 + 0.009*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.138 + 0.001*Tr + 0.032*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C	LZ-110	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	HZ-001	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011         0.192 + 0.037*C         0.153 + 0.001*Tr + 0.032*C           ZH-110         0.200 + 0.008*Tr + 0.032*C         0.140 + 0.027*C           ZL-110         0.192 - 0.002*Tr + 0.037*C         0.153 + 0.004*Tr + 0.032*C           ZH-001         0.127 + 0.032*C         0.084 + 0.002*Tr + 0.027*C           ZL-001         0.103 + 0.037*C         0.083 - 0.001*Tr + 0.032*C           ZH-100         0.126 - 0.002*Tr + 0.032*C         0.085 - 0.003*Tr + 0.027*C           ZL-100         0.103 + 0.037*C         0.083 + 0.002*Tr + 0.032*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.188 - 0.002*Tr + 0.037*C         0.149 + 0.032*C           R-10100         0.198 + 0.009*Tr + 0.032*C         0.139 + 0.027*C           F-00110         0.187 + 0.037*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.032*C         0.080 + 0.002*Tr + 0.032*C           F-00010         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.002*Tr + 0.032*C	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	0.127 + 0.032*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
F-10100       0.188 - 0.002*Tr + 0.037*C       0.149 + 0.032*C         R-10100       0.198 + 0.009*Tr + 0.032*C       0.139 + 0.027*C         F-00110       0.187 + 0.037*C       0.150 + 0.032*C         R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C			0.083 + 0.002*Tr + 0.032*C
R-10100       0.198 + 0.009*Tr + 0.032*C       0.139 + 0.027*C         F-00110       0.187 + 0.037*C       0.150 + 0.032*C         R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C		A TEN)	
F-00110         0.187 + 0.037*C         0.150 + 0.032*C           R-00110         0.198 + 0.004*Tr + 0.032*C         0.138 + 0.001*Tr + 0.027*C           F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-00110       0.198 + 0.004*Tr + 0.032*C       0.138 + 0.001*Tr + 0.027*C         F-10000       0.099 + 0.005*Tr + 0.037*C       0.080 + 0.002*Tr + 0.032*C         R-10000       0.126 - 0.006*Tr + 0.032*C       0.083 + 0.027*C         F-00010       0.100 + 0.037*C       0.080 + 0.003*Tr + 0.032*C	R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-10000         0.099 + 0.005*Tr + 0.037*C         0.080 + 0.002*Tr + 0.032*C           R-10000         0.126 - 0.006*Tr + 0.032*C         0.083 + 0.027*C           F-00010         0.100 + 0.037*C         0.080 + 0.003*Tr + 0.032*C	F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-10000 0.126 - 0.006*Tr + 0.032*C 0.083 + 0.027*C F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-00010 0.100 + 0.037*C 0.080 + 0.003*Tr + 0.032*C	F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
	R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
R-00010 0.125 + 0.002*Tr + 0.032*C 0.083 + 0.027*C	F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
	R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

Din Cyala		Internal Energy (uW/MHz)		
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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 STE.
- 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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
А	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
r arameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0377	0.0349
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0329	0.0320
HYST Input Cap.	0.0325	0.0318
IO Input Cap.	1.5072	1.4476
IO Max Load	201.507	201.448
LOWEMI Input Cap.	0.0265	0.0265
PDN Input Cap.	0.0189	0.0189
PUN Input Cap.	0.0260	0.0260
PUN15K Input Cap.	0.0252	0.0245
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0381	0.0352
TEN Input Cap.	0.0315	0.0306
TM Input Cap.	0.0448	0.0440
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	V	'alue
FIII	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.216 + 0.197*Tr + 0.046*C	1.292 + 0.391*Tr + 0.040*C		
R-010	1.230 + 0.011*Tr + 0.038*C	1.198 + 0.244*Tr + 0.033*C		
F-000	0.866 + 0.197*Tr + 0.045*C	0.926 + 0.384*Tr + 0.039*C		
R-000	0.939 + 0.007*Tr + 0.037*C	0.906 + 0.247*Tr + 0.033*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.640 + 0.139*Tr	0.654 + 0.379*Tr		
LZ-10	0.563 + 0.138*Tr	0.602 + 0.375*Tr		
HZ-00	0.641 + 0.137*Tr	0.655 + 0.378*Tr		
LZ-00	0.563 + 0.137*Tr	0.602 + 0.375*Tr		
ZH-10	1.238 + 0.167*Tr + 0.038*C	1.238 + 0.472*Tr + 0.033*C		
ZL-10	1.243 + 0.165*Tr + 0.046*C	1.336 + 0.476*Tr + 0.040*C		
ZH-00	0.943 + 0.168*Tr + 0.037*C	0.943 + 0.476*Tr + 0.033*C		
ZL-00	0.883 + 0.165*Tr + 0.045*C	0.962 + 0.475*Tr + 0.039*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.418 + 0.197*Tr + 0.175*C	0.467 + 0.250*Tr + 0.255*C		
R-1	0.438 + 0.180*Tr + 0.156*C	0.463 + 0.263*Tr + 0.168*C		
F-0	0.380 + 0.051*Tr + 0.177*C	0.437 + 0.062*Tr + 0.239*C		
R-0	0.397 + 0.044*Tr + 0.124*C	0.451 + 0.064*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.216 + 0.195*Tr + 0.046*C	1.294 + 0.391*Tr + 0.040*C		
R-101	1.229 + 0.014*Tr + 0.038*C	1.196 + 0.247*Tr + 0.033*C		
F-001	0.865 + 0.198*Tr + 0.045*C	0.926 + 0.388*Tr + 0.039*C		
R-001	0.937 + 0.013*Tr + 0.037*C	0.904 + 0.252*Tr + 0.033*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.640 + 0.140*Tr	0.653 + 0.382*Tr		
LZ-01	0.562 + 0.140*Tr	0.600 + 0.378*Tr		
HZ-11	0.639 + 0.143*Tr	0.653 + 0.379*Tr		
LZ-11	0.562 + 0.140*Tr	0.601 + 0.378*Tr		
ZH-01	0.943 + 0.171*Tr + 0.037*C	0.944 + 0.475*Tr + 0.033*C		
ZL-01	0.884 + 0.163*Tr + 0.045*C	0.963 + 0.472*Tr + 0.039*C		
ZH-11	1.238 + 0.170*Tr + 0.038*C	1.237 + 0.474*Tr + 0.033*C		
ZL-11	1.244 + 0.166*Tr + 0.046*C	1.337 + 0.478*Tr + 0.040*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.636 + 0.188*Tr	0.643 + 0.390*Tr		
LZ-011	0.406 + 0.011*Tr	0.420 + 0.241*Tr		
HZ-110	0.662 + 0.252*Tr	0.690 + 0.424*Tr		



LZ-110	0.431 + 0.267*Tr	0.459 + 0.461*Tr
HZ-001	0.636 + 0.187*Tr	0.644 + 0.388*Tr
LZ-001	0.404 - 0.009*Tr	0.419 + 0.243*Tr
HZ-100	0.661 + 0.254*Tr	0.691 + 0.419*Tr
LZ-100	0.430 + 0.267*Tr	0.457 + 0.462*Tr
ZH-011	1.234 + 0.204*Tr + 0.038*C	1.225 + 0.479*Tr + 0.033*C
ZL-011	1.239 + 0.206*Tr + 0.046*C	1.324 + 0.482*Tr + 0.040*C
ZH-110	1.246 - 0.029*Tr + 0.038*C	1.252 + 0.218*Tr + 0.033*C
ZL-110	1.257 - 0.025*Tr + 0.046*C	1.355 + 0.242*Tr + 0.040*C
ZH-001	0.939 + 0.203*Tr + 0.037*C	0.929 + 0.486*Tr + 0.033*C
ZL-001	0.880 + 0.201*Tr + 0.045*C	0.949 + 0.479*Tr + 0.039*C
ZH-100	0.953 - 0.036*Tr + 0.037*C	0.960 + 0.214*Tr + 0.033*C
ZL-100	0.897 - 0.022*Tr + 0.045*C	0.981 + 0.236*Tr + 0.039*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	1.228 - 0.033*Tr + 0.046*C	1.302 + 0.230*Tr + 0.040*C
R-10100	1.252 + 0.261*Tr + 0.038*C	1.233 + 0.438*Tr + 0.033*C
F-00110	1.210 + 0.219*Tr + 0.046*C	1.281 + 0.367*Tr + 0.040*C
R-00110	1.228 + 0.021*Tr + 0.038*C	1.190 + 0.229*Tr + 0.033*C
F-10000	0.876 - 0.026*Tr + 0.045*C	0.932 + 0.233*Tr + 0.039*C
R-10000	0.960 + 0.255*Tr + 0.037*C	0.941 + 0.440*Tr + 0.033*C
F-00010	0.860 + 0.220*Tr + 0.045*C	0.912 + 0.367*Tr + 0.039*C
R-00010	0.936 + 0.022*Tr + 0.037*C	0.899 + 0.230*Tr + 0.033*C

## **Transition Time**

Event	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM	)	,
F-010	0.188 - 0.007*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-010	0.199 + 0.002*Tr + 0.032*C	0.138 + 0.027*C
F-000	0.100 - 0.001*Tr + 0.037*C	0.081 + 0.032*C
R-000	0.124 + 0.032*C	0.083 + 0.002*Tr + 0.027*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.200 + 0.005*Tr + 0.032*C	0.141 - 0.001*Tr + 0.027*C
ZL-10	0.192 + 0.037*C	0.153 + 0.002*Tr + 0.032*C
ZH-00	0.126 + 0.002*Tr + 0.032*C	0.084 + 0.027*C
ZL-00	0.104 - 0.002*Tr + 0.037*C	0.083 + 0.032*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.137*C	0.009 + 0.189*C
R-1	0.006 + 0.085*C	0.009 + 0.128*C
F-0	0.007 + 0.137*C	0.009 + 0.189*C
R-0	0.006 + 0.084*C	0.008 + 0.131*C
Path TA-IO (for pins LOWEMI TEN T	M)	
F-101	0.187 - 0.004*Tr + 0.037*C	0.149 + 0.002*Tr + 0.032*C
R-101	0.197 + 0.007*Tr + 0.032*C	0.139 + 0.027*C
F-001	0.098 + 0.004*Tr + 0.037*C	0.081 + 0.032*C
R-001	0.125 + 0.032*C	0.083 + 0.001*Tr + 0.027*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.124 + 0.007*Tr + 0.032*C	0.085 + 0.027*C
ZL-01	0.104 - 0.001*Tr + 0.037*C	0.082 + 0.032*C
ZH-11	0.201 + 0.032*C	0.140 + 0.027*C
ZL-11	0.193 - 0.006*Tr + 0.037*C	0.153 + 0.002*Tr + 0.032*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.200 + 0.007*Tr + 0.032*C	0.141 + 0.027*C
ZL-011	0.192 + 0.037*C	0.153 + 0.001*Tr + 0.032*C
ZH-110	0.200 + 0.008*Tr + 0.032*C	0.140 + 0.027*C
ZL-110	0.192 - 0.002*Tr + 0.037*C	0.153 + 0.004*Tr + 0.032*C
ZH-001	0.127 + 0.032*C	0.084 + 0.002*Tr + 0.027*C
ZL-001	0.103 + 0.037*C	0.083 - 0.001*Tr + 0.032*C
ZH-100	0.126 - 0.002*Tr + 0.032*C	0.085 - 0.003*Tr + 0.027*C
ZL-100	0.103 + 0.037*C	0.083 + 0.002*Tr + 0.032*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.188 - 0.002*Tr + 0.037*C	0.149 + 0.032*C
R-10100	0.198 + 0.009*Tr + 0.032*C	0.139 + 0.027*C
F-00110	0.187 + 0.037*C	0.150 + 0.032*C
R-00110	0.198 + 0.004*Tr + 0.032*C	0.138 + 0.001*Tr + 0.027*C
F-10000	0.099 + 0.005*Tr + 0.037*C	0.080 + 0.002*Tr + 0.032*C
R-10000	0.126 - 0.006*Tr + 0.032*C	0.083 + 0.027*C
F-00010	0.100 + 0.037*C	0.080 + 0.003*Tr + 0.032*C
R-00010	0.125 + 0.002*Tr + 0.032*C	0.083 + 0.027*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.218e-02
worst 0.90 -40	6.623e-07	3.727e-06

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.514 + 0.313*Tr	0.646 + 0.941*Tr	0.256 + 0.005*Tr	0.335 + 0.008*Tr
ZI toggling	0.285 + 0.002*Tr	0.289 + 0.010*Tr	0.147	0.148 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.315 + 0.005*Tr	10.800 + 0.030*Tr	6.112 + 0.019*Tr	7.004 - 0.015*Tr
ZI toggling	0.503 + 0.555*Tr	0.658 + 0.894*Tr	0.259 + 0.098*Tr	0.400 + 0.251*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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10	worst 0.90
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



0.453 + 0.268*Tr	0.480 + 0.445*Tr
0.690 + 0.186*Tr	0.688 + 0.390*Tr
0.426 - 0.021*Tr	0.438 + 0.234*Tr
0.716 + 0.256*Tr	0.735 + 0.425*Tr
0.453 + 0.268*Tr	0.480 + 0.440*Tr
1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
EN )	
1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C
	0.690 + 0.186*Tr  0.426 - 0.021*Tr  0.716 + 0.256*Tr  0.453 + 0.268*Tr  1.273 + 0.205*Tr + 0.030*C  1.127 + 0.199*Tr + 0.035*C  1.288 - 0.035*Tr + 0.030*C  1.142 - 0.024*Tr + 0.035*C  0.887 + 0.204*Tr + 0.028*C  0.800 + 0.201*Tr + 0.034*C  0.902 - 0.038*Tr + 0.028*C  0.817 - 0.023*Tr + 0.034*C  EN)  1.120 - 0.030*Tr + 0.035*C  1.294 + 0.259*Tr + 0.030*C  1.104 + 0.216*Tr + 0.030*C  1.269 + 0.025*Tr + 0.030*C  0.806 - 0.027*Tr + 0.034*C  0.912 + 0.256*Tr + 0.034*C  0.790 + 0.217*Tr + 0.034*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI 7	TA TEN )	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

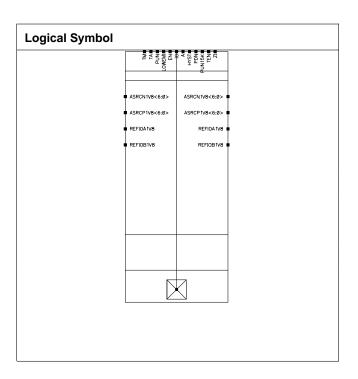
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	e(pF)
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



0.453 + 0.268*Tr	0.480 + 0.445*Tr
0.690 + 0.186*Tr	0.688 + 0.390*Tr
0.426 - 0.021*Tr	0.438 + 0.234*Tr
0.716 + 0.256*Tr	0.735 + 0.425*Tr
0.453 + 0.268*Tr	0.480 + 0.440*Tr
1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
N)	
1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C
	0.690 + 0.186*Tr  0.426 - 0.021*Tr  0.716 + 0.256*Tr  0.453 + 0.268*Tr  1.273 + 0.205*Tr + 0.030*C  1.127 + 0.199*Tr + 0.035*C  1.288 - 0.035*Tr + 0.030*C  1.142 - 0.024*Tr + 0.035*C  0.887 + 0.204*Tr + 0.028*C  0.800 + 0.201*Tr + 0.034*C  0.902 - 0.038*Tr + 0.028*C  0.817 - 0.023*Tr + 0.034*C  EN )  1.120 - 0.030*Tr + 0.035*C  1.294 + 0.259*Tr + 0.030*C  1.104 + 0.216*Tr + 0.030*C  1.269 + 0.025*Tr + 0.030*C  0.806 - 0.027*Tr + 0.034*C  0.912 + 0.256*Tr + 0.034*C  0.790 + 0.217*Tr + 0.034*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	1
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

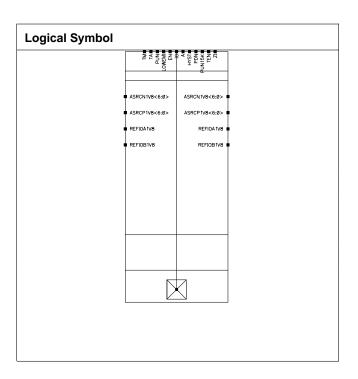
#### **Physical Dimensions**

Area(um2): 3632.000

#### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
r arameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	Value	
ГШ	Farameter	best 1.10	worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65	



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

## **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000				
HZ-11	0.000	0.000				
LZ-11	0.000	0.000				
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C				
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C				
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C				
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C				
Path TM-IO (for pins EN LOWEMI TEN )						
HZ-011	0.000	0.000				
LZ-011	0.000	0.000				
HZ-110	0.000	0.000				
LZ-110	0.000	0.000				
HZ-001	0.000	0.000				
LZ-001	0.000	0.000				
HZ-100	0.000	0.000				
LZ-100	0.000	0.000				
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C				
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C				
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C				
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C				
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C				
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C				
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C				
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C				
Path TM-IO (for pins A EN LOWEMI TA TEN )						
F-10100	0.181 + 0.027*C	0.146 + 0.024*C				
R-10100	0.225 + 0.024*C	0.159 + 0.020*C				
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C				
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C				
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C				
R-10000	0.121 + 0.024*C	0.084 + 0.021*C				
F-00010	0.094 + 0.028*C	0.079 + 0.024*C				
R-00010	0.121 + 0.024*C	0.084 + 0.021*C				

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

Pin Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

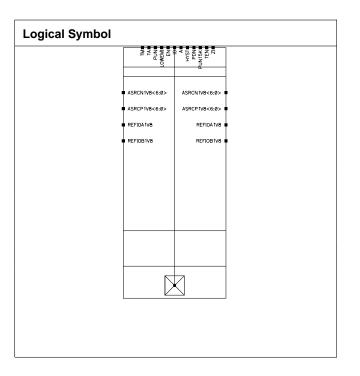
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i alametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Cyant	Value (as a function o	of C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C
Path IO-ZI (for pins HYST )		1
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C
Path TEN-IO (for pins LOWEMI TM)		,
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C
Path TM-IO (for pins EN LOWEMI TEN	1)	
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr



0.453 + 0.268*Tr	0.480 + 0.445*Tr
0.690 + 0.186*Tr	0.688 + 0.390*Tr
0.426 - 0.021*Tr	0.438 + 0.234*Tr
0.716 + 0.256*Tr	0.735 + 0.425*Tr
0.453 + 0.268*Tr	0.480 + 0.440*Tr
1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
EN )	
1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C
	0.690 + 0.186*Tr  0.426 - 0.021*Tr  0.716 + 0.256*Tr  0.453 + 0.268*Tr  1.273 + 0.205*Tr + 0.030*C  1.127 + 0.199*Tr + 0.035*C  1.288 - 0.035*Tr + 0.030*C  1.142 - 0.024*Tr + 0.035*C  0.887 + 0.204*Tr + 0.028*C  0.800 + 0.201*Tr + 0.034*C  0.902 - 0.038*Tr + 0.028*C  0.817 - 0.023*Tr + 0.034*C  EN)  1.120 - 0.030*Tr + 0.035*C  1.294 + 0.259*Tr + 0.030*C  1.104 + 0.216*Tr + 0.030*C  1.269 + 0.025*Tr + 0.030*C  0.806 - 0.027*Tr + 0.034*C  0.912 + 0.256*Tr + 0.034*C  0.790 + 0.217*Tr + 0.034*C

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	EN)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr	
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr	
For vdde1v8			•		
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr	
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
i aiametei	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

### **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

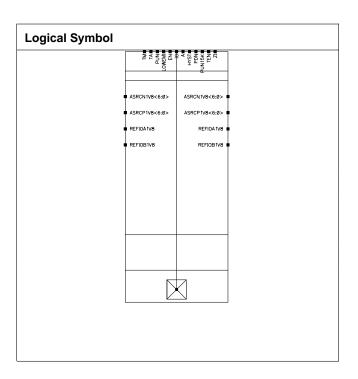
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i alametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Value		
	Parameter	best 1.10 worst 0.9		
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65	



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM)		,		
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )				
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TI	М)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TE	N)			
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

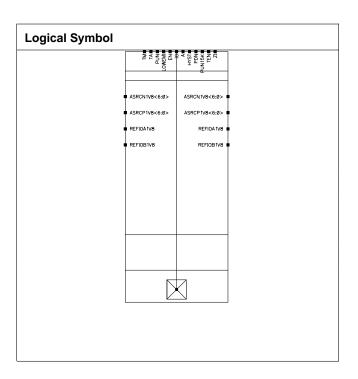
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	Parameter Value(pF)	
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C
Path IO-ZI (for pins HYST )		l
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM	)	1
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr



0.453 + 0.268*Tr	0.480 + 0.445*Tr		
0.690 + 0.186*Tr	0.688 + 0.390*Tr		
0.426 - 0.021*Tr	0.438 + 0.234*Tr		
0.716 + 0.256*Tr	0.735 + 0.425*Tr		
0.453 + 0.268*Tr	0.480 + 0.440*Tr		
1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C		
1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C		
1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C		
1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C		
0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C		
0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C		
0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C		
0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C		
Path TM-IO (for pins A EN LOWEMI TA TEN )			
1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C		
1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C		
1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C		
1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C		
0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C		
0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C		
0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C		
0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C		
	0.690 + 0.186*Tr  0.426 - 0.021*Tr  0.716 + 0.256*Tr  0.453 + 0.268*Tr  1.273 + 0.205*Tr + 0.030*C  1.127 + 0.199*Tr + 0.035*C  1.288 - 0.035*Tr + 0.030*C  1.142 - 0.024*Tr + 0.035*C  0.887 + 0.204*Tr + 0.028*C  0.800 + 0.201*Tr + 0.034*C  0.902 - 0.038*Tr + 0.028*C  0.817 - 0.023*Tr + 0.034*C  EN)  1.120 - 0.030*Tr + 0.035*C  1.294 + 0.259*Tr + 0.030*C  1.104 + 0.216*Tr + 0.030*C  1.269 + 0.025*Tr + 0.030*C  0.806 - 0.027*Tr + 0.034*C  0.912 + 0.256*Tr + 0.034*C  0.790 + 0.217*Tr + 0.034*C		

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TEN	)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

### **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr	
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr	
For vdde1v8	1	1			
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr	
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

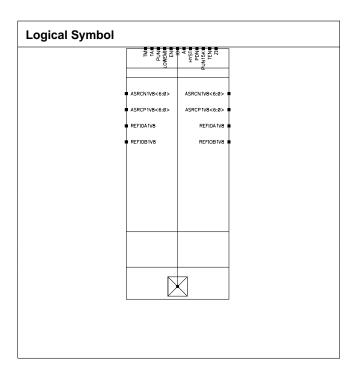
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	e(pF)
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN )	'			
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

### **Transition Time**

Front	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C
R-010	0.225 + 0.024*C	0.159 + 0.020*C
F-000	0.095 + 0.028*C	0.079 + 0.024*C
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C
Path EN-IO (for pins LOWEMI TM )	•	
HZ-10	0.000	0.000
LZ-10	0.000	0.000
HZ-00	0.000	0.000
LZ-00	0.000	0.000
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C
Path IO-ZI (for pins HYST )	·	
F-1	0.005 + 0.137*C	0.006 + 0.188*C
R-1	0.005 + 0.085*C	0.006 + 0.130*C
F-0	0.005 + 0.136*C	0.006 + 0.189*C
R-0	0.005 + 0.085*C	0.006 + 0.131*C
Path TA-IO (for pins LOWEMI TEN T	M )	
F-101	0.181 + 0.027*C	0.147 + 0.024*C
R-101	0.225 + 0.024*C	0.159 + 0.020*C
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C
Path TEN-IO (for pins LOWEMI TM)	•	
HZ-01	0.000	0.000



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI	ΓA TEN )	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

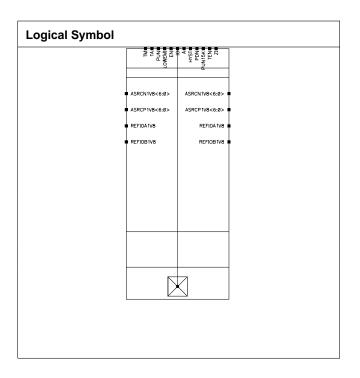
### **Physical Dimensions**

Area(um2): 4252.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)	
Parameter	best 1.10 125	worst 0.90 -40



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10 worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr		
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr		
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr		
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr		
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr		
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C		
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C		
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C		
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C		
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C		
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C		
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C		
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C		
Path TM-IO (for pins A EN LOWEMI TA TEN )				
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C		
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C		
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C		
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C		
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C		
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C		
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C		
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C		

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )		,		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)	,		
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TEI	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8	1	1		
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	A
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i alametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C		
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C		
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C		
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr		
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr		
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr		
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr		
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C		
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C		
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C		
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C		
Path IO-ZI (for pins HYST )		l		
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C		
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C		
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C		
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C		
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C		
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C		
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr		
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr		
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr		
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr		
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C		
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C		
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C		
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C		
Path TM-IO (for pins EN LOWEMI TEN	)	1		
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr		
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr		
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr		



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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.

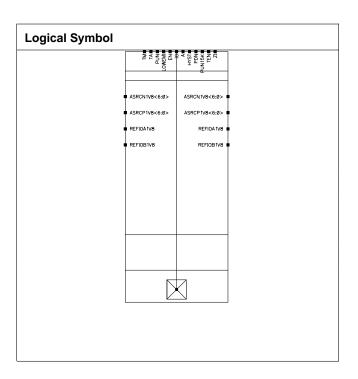
### **Physical Dimensions**

Area(um2): 3632.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

Ю	ZI
10	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	Α
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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	Parameter	
raiametei		



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

Pin	Parameter	Va	llue
ГШ	Farameter	best 1.10 worst 0.90	
IO (Input)	Min Transition (ns)	0.375	0.375
IO (Input)	Max Transition (ns)	12.0	12.0
IO (Input)	Swing (V)	0.0 - 1.95	0.0 - 1.65



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM )		
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C
Path EN-IO (for pins LOWEMI TM )		1
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C
Path IO-ZI (for pins HYST )		l
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM	)	1
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr



0.453 + 0.268*Tr	0.480 + 0.445*Tr			
0.690 + 0.186*Tr	0.688 + 0.390*Tr			
0.426 - 0.021*Tr	0.438 + 0.234*Tr			
0.716 + 0.256*Tr	0.735 + 0.425*Tr			
0.453 + 0.268*Tr	0.480 + 0.440*Tr			
1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C			
1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C			
1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C			
1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C			
0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C			
0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C			
0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C			
0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C			
Path TM-IO (for pins A EN LOWEMI TA TEN )				
1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C			
1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C			
1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C			
1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C			
0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C			
0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C			
0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C			
0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C			
	0.690 + 0.186*Tr  0.426 - 0.021*Tr  0.716 + 0.256*Tr  0.453 + 0.268*Tr  1.273 + 0.205*Tr + 0.030*C  1.127 + 0.199*Tr + 0.035*C  1.288 - 0.035*Tr + 0.030*C  1.142 - 0.024*Tr + 0.035*C  0.887 + 0.204*Tr + 0.028*C  0.800 + 0.201*Tr + 0.034*C  0.902 - 0.038*Tr + 0.028*C  0.817 - 0.023*Tr + 0.034*C  EN )  1.120 - 0.030*Tr + 0.035*C  1.294 + 0.259*Tr + 0.030*C  1.104 + 0.216*Tr + 0.030*C  1.269 + 0.025*Tr + 0.030*C  0.806 - 0.027*Tr + 0.034*C  0.912 + 0.256*Tr + 0.034*C  0.790 + 0.217*Tr + 0.034*C			

### **Transition Time**

Front	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )		,		
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)	,		
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI	ΓA TEN )	
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala		Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)	
For vdd					
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr	
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr	
For vdde1v8	1	1			
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr	
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*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 STE.
- The cell has "dont\_touch" attribute set in the Synopsys STF.

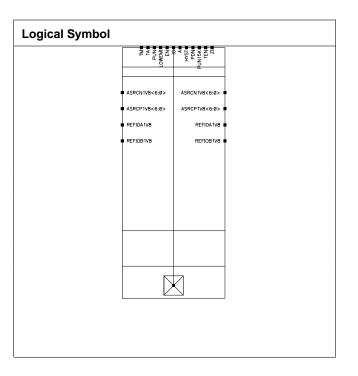
### **Physical Dimensions**

Area(um2): 8307.000

### Glossary

Tr : Input Transition time C : Output (capacitive) load

R : Rising edge F : Falling edge



#### **Truth Table**

IO	ZI
IO	10

Α	EN	TA	TEN	TM	PUN	PDN	PUN15K	Ю
Α	0	-	-	0	-	-	-	А
-	-	TA	0	1	-	-	-	TA
-	1	-	-	0	-	1	0	Н
-	1	-	-	0	0	1	-	Н
-	-	-	1	1	-	1	0	Н
-	-	-	1	1	0	1	-	Н
-	-	-	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)		
i aiametei	best 1.10 125	worst 0.90 -40	



A Input Cap.	0.0261	0.0233
ASRCN1V8[0] Input Cap.	0.0100	0.0100
ASRCN1V8[0] Max Load	10000.000	10000.000
ASRCN1V8[1] Input Cap.	0.0100	0.0100
ASRCN1V8[1] Max Load	10000.000	10000.000
ASRCN1V8[2] Input Cap.	0.0100	0.0100
ASRCN1V8[2] Max Load	10000.000	10000.000
ASRCN1V8[3] Input Cap.	0.0100	0.0100
ASRCN1V8[3] Max Load	10000.000	10000.000
ASRCN1V8[4] Input Cap.	0.0100	0.0100
ASRCN1V8[4] Max Load	10000.000	10000.000
ASRCN1V8[5] Input Cap.	0.0100	0.0100
ASRCN1V8[5] Max Load	10000.000	10000.000
ASRCN1V8[6] Input Cap.	0.0100	0.0100
ASRCN1V8[6] Max Load	10000.000	10000.000
ASRCP1V8[0] Input Cap.	0.0100	0.0100
ASRCP1V8[0] Max Load	10000.000	10000.000
ASRCP1V8[1] Input Cap.	0.0100	0.0100
ASRCP1V8[1] Max Load	10000.000	10000.000
ASRCP1V8[2] Input Cap.	0.0100	0.0100
ASRCP1V8[2] Max Load	10000.000	10000.000
ASRCP1V8[3] Input Cap.	0.0100	0.0100
ASRCP1V8[3] Max Load	10000.000	10000.000
ASRCP1V8[4] Input Cap.	0.0100	0.0100
ASRCP1V8[4] Max Load	10000.000	10000.000
ASRCP1V8[5] Input Cap.	0.0100	0.0100
ASRCP1V8[5] Max Load	10000.000	10000.000
ASRCP1V8[6] Input Cap.	0.0100	0.0100
ASRCP1V8[6] Max Load	10000.000	10000.000
EN Input Cap.	0.0197	0.0188
HYST Input Cap.	0.0146	0.0139
IO Input Cap.	1.5787	1.5170
IO Max Load	201.579	201.517
LOWEMI Input Cap.	0.0107	0.0107
PDN Input Cap.	0.0057	0.0057
PUN Input Cap.	0.0114	0.0114
PUN15K Input Cap.	0.0101	0.0094
REFIOA1V8 Input Cap.	0.0100	0.0100
REFIOA1V8 Max Load	10000.000	10000.000
REFIOB1V8 Input Cap.	0.0100	0.0100
REFIOB1V8 Max Load	10000.000	10000.000
TA Input Cap.	0.0272	0.0243
TEN Input Cap.	0.0185	0.0176
TM Input Cap.	0.0332	0.0324
ZI Max Load	0.200	0.200

# **Special Pin Properties**

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



IO (Input)	Delay thres. rising (V)	0.975	0.825
IO (Input)	Delay thres. falling (V)	0.975	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 - 1.65
IO (Output)	Delay thres. rising (V)	0.975	0.825
IO (Output)	Delay thres. falling (V)	0.975	0.825
IO (Output)	Slope thres. low (V)	0.585	0.495
IO (Output)	Slope thres. high (V)	1.365	1.155

# **Propagation Delay**

Event	Value (as a function o	f C in pF and Tr in nS)
Event	best 1.10 125	worst 0.90 -40
Path A-IO (for pins EN LOWEMI TM)	,	
F-010	1.110 + 0.193*Tr + 0.035*C	1.190 + 0.388*Tr + 0.031*C
R-010	1.272 + 0.011*Tr + 0.030*C	1.237 + 0.246*Tr + 0.026*C
F-000	0.796 + 0.195*Tr + 0.034*C	0.861 + 0.387*Tr + 0.030*C
R-000	0.891 + 0.010*Tr + 0.028*C	0.875 + 0.246*Tr + 0.025*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.689 + 0.144*Tr	0.699 + 0.378*Tr
LZ-10	0.585 + 0.139*Tr	0.618 + 0.376*Tr
HZ-00	0.695 + 0.140*Tr	0.699 + 0.379*Tr
LZ-00	0.584 + 0.140*Tr	0.618 + 0.375*Tr
ZH-10	1.277 + 0.168*Tr + 0.030*C	1.272 + 0.478*Tr + 0.026*C
ZL-10	1.129 + 0.162*Tr + 0.035*C	1.227 + 0.475*Tr + 0.031*C
ZH-00	0.892 + 0.168*Tr + 0.028*C	0.907 + 0.477*Tr + 0.025*C
ZL-00	0.804 + 0.164*Tr + 0.034*C	0.892 + 0.474*Tr + 0.030*C
Path IO-ZI (for pins HYST )		I .
F-1	0.416 + 0.195*Tr + 0.178*C	0.466 + 0.249*Tr + 0.239*C
R-1	0.438 + 0.180*Tr + 0.116*C	0.457 + 0.263*Tr + 0.178*C
F-0	0.375 + 0.050*Tr + 0.182*C	0.431 + 0.062*Tr + 0.247*C
R-0	0.392 + 0.043*Tr + 0.131*C	0.446 + 0.064*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM	M )	1
F-101	1.109 + 0.193*Tr + 0.035*C	1.190 + 0.390*Tr + 0.031*C
R-101	1.271 + 0.012*Tr + 0.030*C	1.235 + 0.251*Tr + 0.026*C
F-001	0.796 + 0.196*Tr + 0.034*C	0.862 + 0.391*Tr + 0.030*C
R-001	0.890 + 0.011*Tr + 0.028*C	0.872 + 0.249*Tr + 0.025*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.693 + 0.141*Tr	0.698 + 0.380*Tr
LZ-01	0.584 + 0.140*Tr	0.617 + 0.377*Tr
HZ-11	0.693 + 0.137*Tr	0.699 + 0.380*Tr
LZ-11	0.585 + 0.140*Tr	0.617 + 0.377*Tr
ZH-01	0.893 + 0.165*Tr + 0.028*C	0.908 + 0.477*Tr + 0.025*C
ZL-01	0.805 + 0.164*Tr + 0.034*C	0.893 + 0.471*Tr + 0.030*C
ZH-11	1.278 + 0.166*Tr + 0.030*C	1.274 + 0.474*Tr + 0.026*C
ZL-11	1.128 + 0.165*Tr + 0.035*C	1.228 + 0.475*Tr + 0.031*C
Path TM-IO (for pins EN LOWEMI TEI	N)	
HZ-011	0.688 + 0.192*Tr	0.689 + 0.390*Tr
LZ-011	0.427 + 0.011*Tr	0.439 + 0.240*Tr
HZ-110	0.716 + 0.251*Tr	0.736 + 0.425*Tr



LZ-110	0.453 + 0.268*Tr	0.480 + 0.445*Tr
HZ-001	0.690 + 0.186*Tr	0.688 + 0.390*Tr
LZ-001	0.426 - 0.021*Tr	0.438 + 0.234*Tr
HZ-100	0.716 + 0.256*Tr	0.735 + 0.425*Tr
LZ-100	0.453 + 0.268*Tr	0.480 + 0.440*Tr
ZH-011	1.273 + 0.205*Tr + 0.030*C	1.261 + 0.479*Tr + 0.026*C
ZL-011	1.127 + 0.199*Tr + 0.035*C	1.216 + 0.478*Tr + 0.031*C
ZH-110	1.288 - 0.035*Tr + 0.030*C	1.289 + 0.216*Tr + 0.026*C
ZL-110	1.142 - 0.024*Tr + 0.035*C	1.246 + 0.241*Tr + 0.031*C
ZH-001	0.887 + 0.204*Tr + 0.028*C	0.895 + 0.482*Tr + 0.025*C
ZL-001	0.800 + 0.201*Tr + 0.034*C	0.879 + 0.479*Tr + 0.030*C
ZH-100	0.902 - 0.038*Tr + 0.028*C	0.922 + 0.219*Tr + 0.025*C
ZL-100	0.817 - 0.023*Tr + 0.034*C	0.911 + 0.236*Tr + 0.030*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	1.120 - 0.030*Tr + 0.035*C	1.198 + 0.230*Tr + 0.031*C
R-10100	1.294 + 0.259*Tr + 0.030*C	1.271 + 0.441*Tr + 0.026*C
F-00110	1.104 + 0.216*Tr + 0.035*C	1.177 + 0.366*Tr + 0.031*C
R-00110	1.269 + 0.025*Tr + 0.030*C	1.229 + 0.230*Tr + 0.026*C
F-10000	0.806 - 0.027*Tr + 0.034*C	0.869 + 0.229*Tr + 0.030*C
R-10000	0.912 + 0.256*Tr + 0.028*C	0.908 + 0.440*Tr + 0.025*C
F-00010	0.790 + 0.217*Tr + 0.034*C	0.848 + 0.366*Tr + 0.030*C
R-00010	0.888 + 0.023*Tr + 0.028*C	0.866 + 0.232*Tr + 0.025*C

### **Transition Time**

Event	Value (as a function o	Value (as a function of C in pF and Tr in nS)		
Event	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM	)			
F-010	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.002*Tr + 0.024*C		
R-010	0.225 + 0.024*C	0.159 + 0.020*C		
F-000	0.095 + 0.028*C	0.079 + 0.024*C		
R-000	0.121 + 0.004*Tr + 0.024*C	0.084 + 0.021*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.000	0.000		
LZ-10	0.000	0.000		
HZ-00	0.000	0.000		
LZ-00	0.000	0.000		
ZH-10	0.228 + 0.024*C	0.162 + 0.020*C		
ZL-10	0.187 + 0.027*C	0.150 + 0.024*C		
ZH-00	0.122 + 0.024*C	0.085 + 0.002*Tr + 0.021*C		
ZL-00	0.099 + 0.028*C	0.081 + 0.024*C		
Path IO-ZI (for pins HYST )				
F-1	0.005 + 0.137*C	0.006 + 0.188*C		
R-1	0.005 + 0.085*C	0.006 + 0.130*C		
F-0	0.005 + 0.136*C	0.006 + 0.189*C		
R-0	0.005 + 0.085*C	0.006 + 0.131*C		
Path TA-IO (for pins LOWEMI TEN T	M)			
F-101	0.181 + 0.027*C	0.147 + 0.024*C		
R-101	0.225 + 0.024*C	0.159 + 0.020*C		
F-001	0.094 - 0.001*Tr + 0.028*C	0.079 + 0.024*C		
R-001	0.121 + 0.024*C	0.084 - 0.001*Tr + 0.021*C		
Path TEN-IO (for pins LOWEMI TM)				
HZ-01	0.000	0.000		



LZ-01	0.000	0.000
HZ-11	0.000	0.000
LZ-11	0.000	0.000
ZH-01	0.123 + 0.024*C	0.085 + 0.002*Tr + 0.021*C
ZL-01	0.099 + 0.028*C	0.081 - 0.002*Tr + 0.024*C
ZH-11	0.229 - 0.001*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-11	0.187 + 0.027*C	0.150 + 0.024*C
Path TM-IO (for pins EN LOWEMI TEN )		
HZ-011	0.000	0.000
LZ-011	0.000	0.000
HZ-110	0.000	0.000
LZ-110	0.000	0.000
HZ-001	0.000	0.000
LZ-001	0.000	0.000
HZ-100	0.000	0.000
LZ-100	0.000	0.000
ZH-011	0.229 - 0.003*Tr + 0.024*C	0.163 - 0.002*Tr + 0.020*C
ZL-011	0.187 + 0.027*C	0.151 + 0.024*C
ZH-110	0.229 + 0.024*C	0.163 - 0.004*Tr + 0.020*C
ZL-110	0.187 + 0.027*C	0.151 - 0.002*Tr + 0.024*C
ZH-001	0.122 + 0.002*Tr + 0.024*C	0.086 + 0.021*C
ZL-001	0.099 + 0.028*C	0.081 + 0.024*C
ZH-100	0.123 + 0.024*C	0.086 + 0.021*C
ZL-100	0.099 + 0.028*C	0.081 + 0.024*C
Path TM-IO (for pins A EN LOWEMI TA T		
F-10100	0.181 + 0.027*C	0.146 + 0.024*C
R-10100	0.225 + 0.024*C	0.159 + 0.020*C
F-00110	0.182 - 0.001*Tr + 0.027*C	0.146 + 0.024*C
R-00110	0.226 - 0.002*Tr + 0.024*C	0.159 + 0.020*C
F-10000	0.095 - 0.002*Tr + 0.028*C	0.079 + 0.024*C
R-10000	0.121 + 0.024*C	0.084 + 0.021*C
F-00010	0.094 + 0.028*C	0.079 + 0.024*C
R-00010	0.121 + 0.024*C	0.084 + 0.021*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.383e-02
worst 0.90 -40	6.624e-07	3.739e-06

# Internal Energy (at minimum output load)

Din Cyala	Internal Energy (uW/MHz)			
Pin Cycle	best 1.10 125 (Min values)	best 1.10 125 (Max values)	worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.496 + 0.312*Tr	0.624 + 0.939*Tr	0.243 + 0.001*Tr	0.319 + 0.008*Tr
ZI toggling	0.265 + 0.002*Tr	0.270 + 0.010*Tr	0.132	0.134 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	9.935 + 0.007*Tr	11.695 + 0.018*Tr	6.519 + 0.046*Tr	7.474 - 0.002*Tr
ZI toggling	0.505 + 0.561*Tr	0.666 + 0.896*Tr	0.258 + 0.098*Tr	0.396 + 0.252*Tr





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