

# 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.

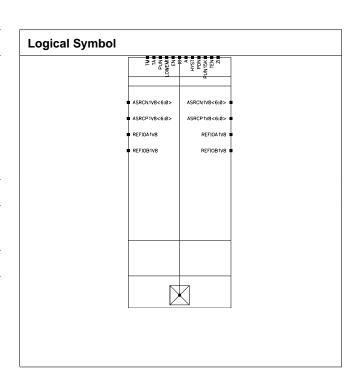
## **Physical Dimensions**

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)
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 - 1.32	0.0 - 1.08
IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Front	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	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )				
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				



F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C
Path TEN-IO (for pins LOWEMI TM )		7.1.00 1 0.1200 11 1 0.1100 0
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C
Path TM-IO (for pins EN LOWEMI TE	EN )	
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr
LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI		
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C

## **Transition Time**

Event	Value (as a function of C in pF and Tr in nS)			
_ vent	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )				
F-010	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C
Path IO-ZI (for pins HYST )	0.170 - 0.003 H + 0.230 G	0.107 - 0.004 11 + 0.303 0
F-1	0.007 + 0.138*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 + 0.127*C
Path TA-IO (for pins LOWEMI TEN TM		0.000 1 0.127 0
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*C
Path TEN-IO (for pins LOWEMI TM )	1.203 0.003 11 1 0.074 0	1.000 0.010 11 1 0.102 0
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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*C
Path TM-IO (for pins EN LOWEMI TE		0.377 + 0.301 C
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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI T	-	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

**Default Leakage Power** 



Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr	
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

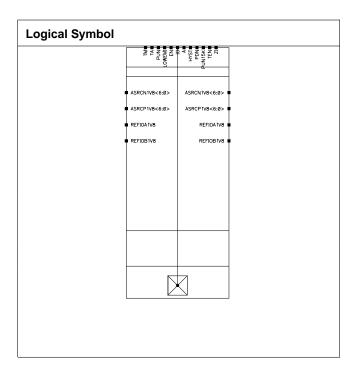
## **Physical Dimensions**

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	-	-	-	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	0.0350
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C			
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C			
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C			
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr			
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr			
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr			
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr			
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ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C			
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C			
Path IO-ZI (for pins HYST )	1				
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C			
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C			
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM)	1				
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C			
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C			
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C			
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr			
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr			
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr			
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr			
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C			
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C			
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C			
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C			
Path TM-IO (for pins EN LOWEMI TEN )	)	1			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr			
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr			
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr			



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C

## **Transition Time**

Event	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)	<u>'</u>	
F-010	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.138*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 + 0.127*C
Path TA-IO (for pins LOWEMI TEN TM	И)	
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8	For vdde1v8				
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr	
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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	-	-	-	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	0.0350
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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		
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		ı		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN )				
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C		
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C		
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C		
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*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 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C		
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C		
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C		
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	•
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.	1.3832	1.3116
IO Max Load	51.383	51.312
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	Doromotor	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM)	,	1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C

## **Transition Time**

Cyant	Event 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 )	<u>'</u>		
F-010	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C	
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C	
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C	
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C	
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C	
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C	
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.138*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 + 0.127*C	
Path TA-IO (for pins LOWEMI TEN TM		,	
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C	
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C	
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C	
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

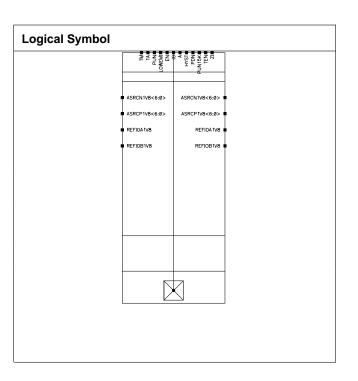
## **Physical Dimensions**

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

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	0.0350
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		ı		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C		
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C		
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C		
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*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 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C		
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C		
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C		
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8	1		1	
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

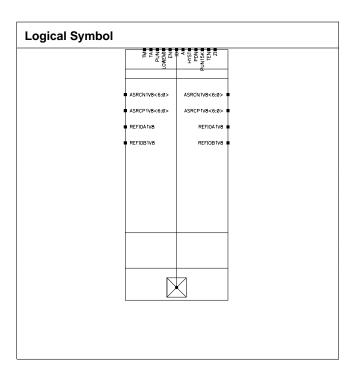
## **Physical Dimensions**

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(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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C			
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C			
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C			
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr			
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr			
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr			
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr			
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C			
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C			
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C			
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C			
Path IO-ZI (for pins HYST )					
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C			
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C			
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	<b>(1)</b>	T.			
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C			
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C			
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C			
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C			
Path TEN-IO (for pins LOWEMI TM)		1			
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr			
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr			
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr			
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr			
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C			
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C			
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C			
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C			
Path TM-IO (for pins EN LOWEMI TEI	N )				
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr			
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr			
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr			



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LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C

## **Transition Time**

Front	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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C	
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C	
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C	
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C	
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C	
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C	
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.138*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 + 0.127*C	
Path TA-IO (for pins LOWEMI TEN TM )			
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C	
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C	
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C	
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
Table   Tabl	ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*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         1.652 - 0.002*Tr + 0.082*C         1.881 - 0.011*Tr + 0.108*C           ZL-011         0.379 + 0.227*C         0.376 + 0.005*Tr + 0.301*C           ZH-110         1.652 + 0.082*C         1.869 + 0.108*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZH-001         1.214 + 0.074*C         1.344 - 0.006*Tr + 0.102*C           ZL-1001         0.169 - 0.003*Tr + 0.230*C         0.168 - 0.003*Tr + 0.305*C           ZH-100         1.214 - 0.006*Tr + 0.074*C         1.345 - 0.001*Tr + 0.305*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         1.646 - 0.002*Tr + 0.082*C         1.871 - 0.006*Tr + 0.301*C           R-10100         1.648 - 0.002*Tr + 0.082*C         1.871 - 0.006*Tr + 0.108*C           F-10010         0.366 + 0.	ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
HZ-011			0.377 + 0.301*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         1.652 - 0.002*Tr + 0.082*C         1.881 - 0.011*Tr + 0.108*C           ZL-011         0.379 + 0.227*C         0.376 + 0.005*Tr + 0.301*C           ZH-110         1.652 + 0.082*C         1.869 + 0.108*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZH-001         1.214 + 0.074*C         1.344 - 0.006*Tr + 0.301*C           ZH-001         0.169 - 0.003*Tr + 0.230*C         0.168 - 0.003*Tr + 0.305*C           ZH-100         1.214 + 0.074*C         1.344 + 0.006*Tr + 0.102*C           ZH-100         0.170 + 0.230*C         0.167 - 0.003*Tr + 0.305*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         The contract of t	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110			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         1.652 - 0.002*Tr + 0.082*C         1.881 - 0.011*Tr + 0.108*C           ZL-011         0.379 + 0.227*C         0.376 + 0.005*Tr + 0.301*C           ZH-110         1.652 + 0.082*C         1.869 + 0.108*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZH-001         1.214 + 0.074*C         1.344 - 0.006*Tr + 0.102*C           ZL-001         0.169 - 0.003*Tr + 0.230*C         0.168 - 0.003*Tr + 0.305*C           ZH-100         1.214 - 0.006*Tr + 0.074*C         1.345 + 0.001*Tr + 0.102*C           ZL-100         0.170 + 0.230*C         0.167 - 0.003*Tr + 0.305*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.366 + 0.227*C         0.362 - 0.002*Tr + 0.301*C           R-10100         1.646 - 0.002*Tr + 0.082*C         1.871 - 0.006*Tr + 0.108*C           F-00110         0.366 + 0.227*C         0.362 - 0.001*Tr + 0.108*C           F-10000         0.162 + 0.230*C         0.159 + 0.002*Tr + 0.305*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         1.652 - 0.002*Tr + 0.082*C         1.881 - 0.011*Tr + 0.108*C           ZL-011         0.379 + 0.227*C         0.376 + 0.005*Tr + 0.301*C           ZH-110         1.652 + 0.082*C         1.869 + 0.108*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZH-001         1.214 + 0.074*C         1.344 - 0.006*Tr + 0.102*C           ZL-001         0.169 - 0.003*Tr + 0.230*C         0.168 - 0.003*Tr + 0.305*C           ZH-100         1.214 - 0.006*Tr + 0.074*C         1.345 + 0.001*Tr + 0.102*C           ZL-100         0.170 + 0.230*C         0.167 - 0.003*Tr + 0.305*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.366 + 0.227*C         0.362 - 0.002*Tr + 0.301*C           R-10100         1.646 - 0.002*Tr + 0.082*C         1.871 - 0.006*Tr + 0.108*C           F-00110         0.366 + 0.227*C         0.362 - 0.001*Tr + 0.108*C           F-10000         0.162 + 0.230*C         1.869 - 0.001*Tr + 0.108*C           F-10000         0.162 + 0.230*C         0.159 + 0.002*Tr + 0.005*Tr + 0.005*C	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100	LZ-001	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011         0.379 + 0.227*C         0.376 + 0.005*Tr + 0.301*C           ZH-110         1.652 + 0.082*C         1.869 + 0.108*C           ZL-110         0.379 + 0.227*C         0.375 + 0.004*Tr + 0.301*C           ZH-001         1.214 + 0.074*C         1.344 - 0.006*Tr + 0.102*C           ZL-001         0.169 - 0.003*Tr + 0.230*C         0.168 - 0.003*Tr + 0.305*C           ZH-100         1.214 - 0.006*Tr + 0.074*C         1.345 + 0.001*Tr + 0.102*C           ZL-100         0.170 + 0.230*C         0.167 - 0.003*Tr + 0.305*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.366 + 0.227*C         0.362 - 0.002*Tr + 0.301*C           R-10100         1.646 - 0.002*Tr + 0.082*C         1.871 - 0.006*Tr + 0.108*C           F-00110         0.366 + 0.227*C         0.362 - 0.001*Tr + 0.301*C           R-00110         1.648 - 0.002*Tr + 0.082*C         1.869 - 0.001*Tr + 0.108*C           F-10000         0.162 + 0.230*C         0.159 + 0.002*Tr + 0.305*C           R-10000         1.208 + 0.075*C         1.357 - 0.015*Tr + 0.102*C           F-00010         0.164 - 0.001*Tr + 0.230*C         0.160 + 0.004*Tr + 0.305*C	LZ-100	0.000	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-011	1.652 - 0.002*Tr + 0.082*C	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-110	0.379 + 0.227*C	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
F-10100       0.366 + 0.227*C       0.362 - 0.002*Tr + 0.301*C         R-10100       1.646 - 0.002*Tr + 0.082*C       1.871 - 0.006*Tr + 0.108*C         F-00110       0.366 + 0.227*C       0.362 - 0.001*Tr + 0.301*C         R-00110       1.648 - 0.002*Tr + 0.082*C       1.869 - 0.001*Tr + 0.108*C         F-10000       0.162 + 0.230*C       0.159 + 0.002*Tr + 0.305*C         R-10000       1.208 + 0.075*C       1.357 - 0.015*Tr + 0.102*C         F-00010       0.164 - 0.001*Tr + 0.230*C       0.160 + 0.004*Tr + 0.305*C			0.167 - 0.003*Tr + 0.305*C
R-10100       1.646 - 0.002*Tr + 0.082*C       1.871 - 0.006*Tr + 0.108*C         F-00110       0.366 + 0.227*C       0.362 - 0.001*Tr + 0.301*C         R-00110       1.648 - 0.002*Tr + 0.082*C       1.869 - 0.001*Tr + 0.108*C         F-10000       0.162 + 0.230*C       0.159 + 0.002*Tr + 0.305*C         R-10000       1.208 + 0.075*C       1.357 - 0.015*Tr + 0.102*C         F-00010       0.164 - 0.001*Tr + 0.230*C       0.160 + 0.004*Tr + 0.305*C	Path TM-IO (for pins A EN LOWEMI T	TA TEN )	
F-00110         0.366 + 0.227*C         0.362 - 0.001*Tr + 0.301*C           R-00110         1.648 - 0.002*Tr + 0.082*C         1.869 - 0.001*Tr + 0.108*C           F-10000         0.162 + 0.230*C         0.159 + 0.002*Tr + 0.305*C           R-10000         1.208 + 0.075*C         1.357 - 0.015*Tr + 0.102*C           F-00010         0.164 - 0.001*Tr + 0.230*C         0.160 + 0.004*Tr + 0.305*C	F-10100		0.362 - 0.002*Tr + 0.301*C
R-00110       1.648 - 0.002*Tr + 0.082*C       1.869 - 0.001*Tr + 0.108*C         F-10000       0.162 + 0.230*C       0.159 + 0.002*Tr + 0.305*C         R-10000       1.208 + 0.075*C       1.357 - 0.015*Tr + 0.102*C         F-00010       0.164 - 0.001*Tr + 0.230*C       0.160 + 0.004*Tr + 0.305*C	R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-10000         0.162 + 0.230*C         0.159 + 0.002*Tr + 0.305*C           R-10000         1.208 + 0.075*C         1.357 - 0.015*Tr + 0.102*C           F-00010         0.164 - 0.001*Tr + 0.230*C         0.160 + 0.004*Tr + 0.305*C	F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-10000 1.208 + 0.075*C 1.357 - 0.015*Tr + 0.102*C F-00010 0.164 - 0.001*Tr + 0.230*C 0.160 + 0.004*Tr + 0.305*C	R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-00010 0.164 - 0.001*Tr + 0.230*C 0.160 + 0.004*Tr + 0.305*C	F-10000	0.162 + 0.230*C	
		1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
R-00010 1.212 - 0.004*Tr + 0.074*C 1.357 - 0.017*Tr + 0.102*C	F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
	R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## Internal Energy (at minimum output load)

Dia Occala	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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			1	1	
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr	
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.	1.3832	1.3116
IO Max Load	51.383	51.312
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		ı		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN )				
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr	
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr	
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr	
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr	
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr	
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C	
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C	
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C	
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C	
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C	
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C	
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C	
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C	
Path TM-IO (for pins A EN LOWEMI TA TEN )			
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C	
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C	
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C	
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C	
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C	
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C	
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C	
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C		
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C		
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C		
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*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 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C		
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C		
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C		
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	•
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

## 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8	1		1	
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

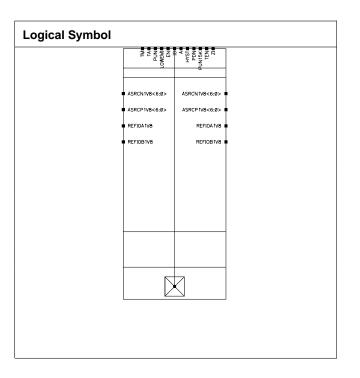
### **Physical Dimensions**

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)	
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		1		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM)	,	1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr	
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr	
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr	
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr	
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr	
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C	
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C	
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C	
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C	
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C	
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C	
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C	
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C	
Path TM-IO (for pins A EN LOWEMI TA TEN )			
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C	
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C	
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C	
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C	
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C	
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C	
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C	
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C	

## **Transition Time**

Event	Value (as a function of	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 )	<u>'</u>		
F-010	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C	
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C	
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C	
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C	
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C	
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C	
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.138*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 + 0.127*C	
Path TA-IO (for pins LOWEMI TEN TM		,	
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C	
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C	
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C	
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

# Internal Energy (at minimum output load)

Dia Ovala	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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			1	1
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

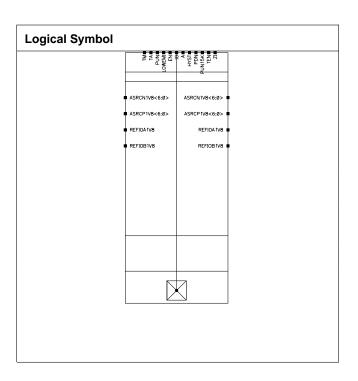
### **Physical Dimensions**

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	-	-	-	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)	
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		ı		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



0.407 + 0.269*Tr	0.578 + 0.447*Tr
0.773 + 0.179*Tr	0.999 + 0.388*Tr
0.374 + 0.313*Tr	0.497 + 0.617*Tr
0.794 + 0.278*Tr	1.047 + 0.425*Tr
0.407 + 0.269*Tr	0.577 + 0.448*Tr
5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
TEN)	
2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C
	0.773 + 0.179*Tr 0.374 + 0.313*Tr 0.794 + 0.278*Tr 0.407 + 0.269*Tr 5.937 + 0.201*Tr + 0.185*C 2.306 + 0.203*Tr + 0.281*C 5.953 - 0.026*Tr + 0.185*C 2.324 - 0.015*Tr + 0.185*C 4.541 + 0.213*Tr + 0.152*C 1.515 + 0.195*Tr + 0.274*C 4.560 - 0.032*Tr + 0.152*C 1.533 - 0.026*Tr + 0.152*C 1.533 - 0.026*Tr + 0.152*C 5.856 + 0.261*Tr + 0.273*C  TEN )  2.239 - 0.027*Tr + 0.281*C 5.856 + 0.261*Tr + 0.185*C 2.223 + 0.218*Tr + 0.185*C 1.484 - 0.021*Tr + 0.273*C 4.504 + 0.258*Tr + 0.152*C 1.467 + 0.225*Tr + 0.152*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C
Path IO-ZI (for pins HYST )	•	
F-1	0.007 + 0.138*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 + 0.127*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	•
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

# 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr	
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

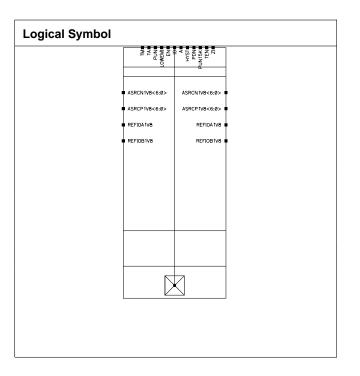
### **Physical Dimensions**

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	-	-	-	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 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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C
Path IO-ZI (for pins HYST )		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	I .
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C
Path TM-IO (for pins EN LOWEMI TEN	)	
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr



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0.407 + 0.269*Tr	0.578 + 0.447*Tr		
0.773 + 0.179*Tr	0.999 + 0.388*Tr		
0.374 + 0.313*Tr	0.497 + 0.617*Tr		
0.794 + 0.278*Tr	1.047 + 0.425*Tr		
0.407 + 0.269*Tr	0.577 + 0.448*Tr		
5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C		
2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C		
5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C		
2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C		
4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C		
1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C		
4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C		
1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C		
Path TM-IO (for pins A EN LOWEMI TA TEN )			
2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C		
5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C		
2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C		
5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C		
1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C		
4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C		
1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C		
4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C		
	0.773 + 0.179*Tr  0.374 + 0.313*Tr  0.794 + 0.278*Tr  0.407 + 0.269*Tr  5.937 + 0.201*Tr + 0.185*C  2.306 + 0.203*Tr + 0.281*C  5.953 - 0.026*Tr + 0.185*C  2.324 - 0.015*Tr + 0.185*C  4.541 + 0.213*Tr + 0.152*C  1.515 + 0.195*Tr + 0.274*C  4.560 - 0.032*Tr + 0.152*C  1.533 - 0.026*Tr + 0.152*C  1.533 - 0.026*Tr + 0.185*C  2.239 - 0.027*Tr + 0.185*C  5.856 + 0.261*Tr + 0.185*C  2.223 + 0.218*Tr + 0.185*C  1.484 - 0.021*Tr + 0.185*C  4.504 + 0.258*Tr + 0.152*C  1.467 + 0.225*Tr + 0.273*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.138*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 + 0.127*C
Path TA-IO (for pins LOWEMI TEN T	M )	
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE		
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
	I	
F-00010 R-00010	0.164 - 0.001*Tr + 0.230*C 1.212 - 0.004*Tr + 0.074*C	0.160 + 0.004*Tr + 0.305*C 1.357 - 0.017*Tr + 0.102*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

# Internal Energy (at minimum output load)

Dia Occala		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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			1	1	
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr	
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

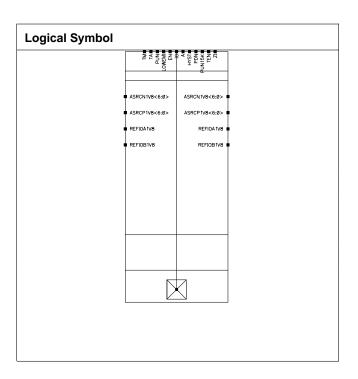
### **Physical Dimensions**

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	-	-	-	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)	
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.	1.3832	1.3116
IO Max Load	51.383	51.312
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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 )		1		
F-010	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )		ı		
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )		1		
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)		1		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN )				
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN )	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C		
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C		
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C		
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*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 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TI	М)			
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C		
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C		
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C		
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	1.208 + 0.075*C	1.357 - 0.015*Tr + 0.102*C
F-00010	0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C
R-00010	1.212 - 0.004*Tr + 0.074*C	1.357 - 0.017*Tr + 0.102*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

# 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8	1		1	
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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	-	-	-	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	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.	1.3832	1.3116
IO Max Load	51.383	51.312
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 0.9		
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

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	2.228 + 0.194*Tr + 0.281*C	3.587 + 0.385*Tr + 0.379*C		
R-010	5.836 + 0.005*Tr + 0.185*C	10.558 + 0.257*Tr + 0.227*C		
F-000	1.474 + 0.196*Tr + 0.273*C	2.361 + 0.391*Tr + 0.372*C		
R-000	4.480 + 0.018*Tr + 0.152*C	7.740 + 0.257*Tr + 0.193*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.777 + 0.132*Tr	1.011 + 0.375*Tr		
LZ-10	0.610 + 0.136*Tr	0.919 + 0.373*Tr		
HZ-00	0.776 + 0.133*Tr	1.010 + 0.375*Tr		
LZ-00	0.610 + 0.136*Tr	0.920 + 0.373*Tr		
ZH-10	5.943 + 0.166*Tr + 0.185*C	10.793 + 0.517*Tr + 0.227*C		
ZL-10	2.305 + 0.167*Tr + 0.282*C	3.762 + 0.473*Tr + 0.379*C		
ZH-00	4.547 + 0.169*Tr + 0.152*C	7.910 + 0.498*Tr + 0.192*C		
ZL-00	1.513 + 0.158*Tr + 0.274*C	2.469 + 0.470*Tr + 0.372*C		
Path IO-ZI (for pins HYST )				
F-1	0.581 + 0.266*Tr + 0.181*C	0.752 + 0.528*Tr + 0.186*C		
R-1	0.553 + 0.208*Tr + 0.116*C	0.673 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.176*C	0.850 + 0.258*Tr + 0.226*C		
R-0	0.519 + 0.034*Tr + 0.124*C	0.806 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)	I .		
F-101	2.229 + 0.198*Tr + 0.281*C	3.590 + 0.387*Tr + 0.379*C		
R-101	5.835 + 0.013*Tr + 0.185*C	10.553 + 0.261*Tr + 0.227*C		
F-001	1.475 + 0.199*Tr + 0.273*C	2.367 + 0.382*Tr + 0.372*C		
R-001	4.483 + 0.010*Tr + 0.152*C	7.735 + 0.260*Tr + 0.193*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.775 + 0.134*Tr	1.010 + 0.374*Tr		
LZ-01	0.609 + 0.137*Tr	0.918 + 0.379*Tr		
HZ-11	0.777 + 0.130*Tr	1.010 + 0.373*Tr		
LZ-11	0.609 + 0.138*Tr	0.919 + 0.377*Tr		
ZH-01	4.546 + 0.171*Tr + 0.152*C	7.909 + 0.498*Tr + 0.193*C		
ZL-01	1.516 + 0.161*Tr + 0.274*C	2.470 + 0.466*Tr + 0.372*C		
ZH-11	5.940 + 0.170*Tr + 0.185*C	10.791 + 0.523*Tr + 0.227*C		
ZL-11	2.305 + 0.171*Tr + 0.282*C	3.763 + 0.466*Tr + 0.379*C		
Path TM-IO (for pins EN LOWEMI TEN	)			
HZ-011	0.773 + 0.179*Tr	0.999 + 0.387*Tr		
LZ-011	0.375 + 0.321*Tr	0.497 + 0.619*Tr		
HZ-110	0.795 + 0.276*Tr	1.047 + 0.428*Tr		



LZ-110	0.407 + 0.269*Tr	0.578 + 0.447*Tr
HZ-001	0.773 + 0.179*Tr	0.999 + 0.388*Tr
LZ-001	0.374 + 0.313*Tr	0.497 + 0.617*Tr
HZ-100	0.794 + 0.278*Tr	1.047 + 0.425*Tr
LZ-100	0.407 + 0.269*Tr	0.577 + 0.448*Tr
ZH-011	5.937 + 0.201*Tr + 0.185*C	10.780 + 0.519*Tr + 0.227*C
ZL-011	2.306 + 0.203*Tr + 0.281*C	3.752 + 0.476*Tr + 0.379*C
ZH-110	5.953 - 0.026*Tr + 0.185*C	10.805 + 0.232*Tr + 0.227*C
ZL-110	2.324 - 0.015*Tr + 0.281*C	3.784 + 0.243*Tr + 0.379*C
ZH-001	4.541 + 0.213*Tr + 0.152*C	7.893 + 0.504*Tr + 0.193*C
ZL-001	1.515 + 0.195*Tr + 0.274*C	2.459 + 0.472*Tr + 0.372*C
ZH-100	4.560 - 0.032*Tr + 0.152*C	7.919 + 0.224*Tr + 0.193*C
ZL-100	1.533 - 0.026*Tr + 0.273*C	2.486 + 0.238*Tr + 0.372*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.239 - 0.027*Tr + 0.281*C	3.597 + 0.228*Tr + 0.379*C
R-10100	5.856 + 0.261*Tr + 0.185*C	10.591 + 0.467*Tr + 0.227*C
F-00110	2.223 + 0.218*Tr + 0.281*C	3.577 + 0.365*Tr + 0.379*C
R-00110	5.835 + 0.022*Tr + 0.185*C	10.549 + 0.245*Tr + 0.227*C
F-10000	1.484 - 0.021*Tr + 0.273*C	2.372 + 0.228*Tr + 0.372*C
R-10000	4.504 + 0.258*Tr + 0.152*C	7.772 + 0.461*Tr + 0.193*C
F-00010	1.467 + 0.225*Tr + 0.273*C	2.351 + 0.369*Tr + 0.372*C
R-00010	4.479 + 0.022*Tr + 0.152*C	7.731 + 0.239*Tr + 0.193*C

## **Transition Time**

Event	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	0.366 - 0.003*Tr + 0.227*C	0.360 + 0.001*Tr + 0.301*C		
R-010	1.648 - 0.006*Tr + 0.082*C	1.872 - 0.010*Tr + 0.108*C		
F-000	0.164 - 0.003*Tr + 0.230*C	0.159 + 0.003*Tr + 0.305*C		
R-000	1.210 + 0.003*Tr + 0.074*C	1.349 - 0.010*Tr + 0.102*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	1.653 - 0.007*Tr + 0.082*C	1.883 - 0.015*Tr + 0.107*C		
ZL-10	0.379 + 0.227*C	0.376 + 0.006*Tr + 0.301*C		
ZH-00	1.215 - 0.002*Tr + 0.074*C	1.344 - 0.001*Tr + 0.102*C		
ZL-00	0.170 - 0.005*Tr + 0.230*C	0.167 - 0.004*Tr + 0.305*C		
Path IO-ZI (for pins HYST )		ı		
F-1	0.007 + 0.138*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 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TI	И)	·		
F-101	0.366 + 0.002*Tr + 0.227*C	0.362 - 0.003*Tr + 0.301*C		
R-101	1.646 - 0.004*Tr + 0.082*C	1.871 - 0.002*Tr + 0.108*C		
F-001	0.163 - 0.003*Tr + 0.230*C	0.158 + 0.004*Tr + 0.305*C		
R-001	1.209 - 0.005*Tr + 0.074*C	1.358 - 0.013*Tr + 0.102*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	1.218 - 0.007*Tr + 0.074*C	1.345 - 0.001*Tr + 0.102*C
ZL-01	0.169 - 0.001*Tr + 0.230*C	0.168 - 0.004*Tr + 0.305*C
ZH-11	1.652 + 0.001*Tr + 0.082*C	1.895 - 0.025*Tr + 0.107*C
ZL-11	0.378 + 0.003*Tr + 0.227*C	0.377 + 0.301*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	1.652 - 0.002*Tr + 0.082*C	1.881 - 0.011*Tr + 0.108*C
ZL-011	0.379 + 0.227*C	0.376 + 0.005*Tr + 0.301*C
ZH-110	1.652 + 0.082*C	1.869 + 0.108*C
ZL-110	0.379 + 0.227*C	0.375 + 0.004*Tr + 0.301*C
ZH-001	1.214 + 0.074*C	1.344 - 0.006*Tr + 0.102*C
ZL-001	0.169 - 0.003*Tr + 0.230*C	0.168 - 0.003*Tr + 0.305*C
ZH-100	1.214 - 0.006*Tr + 0.074*C	1.345 + 0.001*Tr + 0.102*C
ZL-100	0.170 + 0.230*C	0.167 - 0.003*Tr + 0.305*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	0.366 + 0.227*C	0.362 - 0.002*Tr + 0.301*C
R-10100	1.646 - 0.002*Tr + 0.082*C	1.871 - 0.006*Tr + 0.108*C
F-00110	0.366 + 0.227*C	0.362 - 0.001*Tr + 0.301*C
R-00110	1.648 - 0.002*Tr + 0.082*C	1.869 - 0.001*Tr + 0.108*C
F-10000	0.162 + 0.230*C	0.159 + 0.002*Tr + 0.305*C
R-10000	4.000 0.075+0	1.357 - 0.015*Tr + 0.102*C
	1.208 + 0.075*C	1.337 - 0.013 11 + 0.102 0
F-00010	1.208 + 0.075°C 0.164 - 0.001*Tr + 0.230*C	0.160 + 0.004*Tr + 0.305*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.358e-03
worst 0.90 -40	6.622e-07	1.894e-07

# 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	0.506 + 0.313*Tr	0.635 + 0.939*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	3.671 - 0.004*Tr	4.303 + 0.047*Tr	2.099 + 0.049*Tr	2.417 + 0.007*Tr
ZI toggling	0.189 + 0.084*Tr	0.264 + 0.160*Tr	0.101	0.134 + 0.024*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.

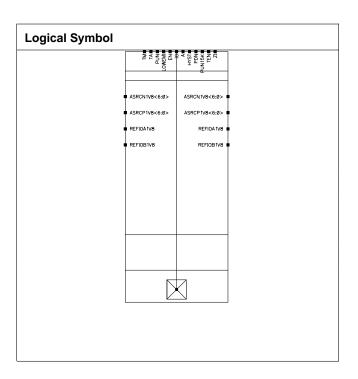
### **Physical Dimensions**

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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



0.414 + 0.270*Tr	0.583 + 0.446*Tr
0.945 + 0.188*Tr	1.149 + 0.382*Tr
0.389 + 0.054*Tr	0.536 + 0.271*Tr
0.973 + 0.255*Tr	1.196 + 0.423*Tr
0.414 + 0.270*Tr	0.583 + 0.448*Tr
5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
EN)	
2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C
	0.945 + 0.188*Tr 0.389 + 0.054*Tr 0.973 + 0.255*Tr 0.414 + 0.270*Tr 5.415 + 0.207*Tr + 0.091*C 2.359 + 0.210*Tr + 0.145*C 5.427 - 0.027*Tr + 0.091*C 2.378 - 0.021*Tr + 0.145*C 4.585 + 0.198*Tr + 0.082*C 1.853 + 0.202*Tr + 0.142*C 4.598 - 0.031*Tr + 0.082*C 1.868 - 0.024*Tr + 0.142*C  EN)  2.295 - 0.016*Tr + 0.145*C 5.386 + 0.244*Tr + 0.090*C 2.277 + 0.227*Tr + 0.145*C 5.360 + 0.015*Tr + 0.090*C 1.816 - 0.025*Tr + 0.142*C 4.565 + 0.259*Tr + 0.142*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M )	
F-101	0.410 + 0.113*C	0.443 + 0.150*C
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			1		
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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	-	-	-	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	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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		
	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C
Path IO-ZI (for pins HYST )	-	
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C
Path TEN-IO (for pins LOWEMI TM)		
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C
Path TM-IO (for pins EN LOWEMI TEN	1)	1
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	1
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

## **Transition Time**

Front	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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C	
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C	
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C	
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C	
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C	
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C	
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C	
Path TA-IO (for pins LOWEMI TEN T	M )		
F-101	0.410 + 0.113*C	0.443 + 0.150*C	
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C	
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C	
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C
		<u> </u>

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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	-	-	-	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 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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	Value		
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08		



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM )					
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN )	·				
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

# **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C				
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C				
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C				
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C				
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C				
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C				
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C				
Path IO-ZI (for pins HYST )						
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C				
Path TA-IO (for pins LOWEMI TEN TM	)					
F-101	0.410 + 0.113*C	0.443 + 0.150*C				
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C				
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C				
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*C
Path TM-IO (for pins EN LOWEMI TE		
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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C
		<u> </u>

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# Internal Energy (at minimum output load)

Pin Cyala		Internal Ene	rgy (uW/MHz)	/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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr		
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr		
For vdde1v8			1			
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr		
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

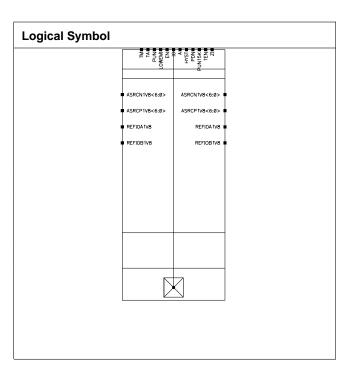
### **Physical Dimensions**

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	-	-	-	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C
Path IO-ZI (for pins HYST )		I .
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	1
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

# **Transition Time**

Fuent	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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C
Path IO-ZI (for pins HYST )		
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN TM		
F-101	0.410 + 0.113*C	0.443 + 0.150*C
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	Faiailletei	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM)					
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN )	·				
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M )				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
Table   Tabl	ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*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+011         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZH-011         1.449 + 0.003*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.041*C         0.455 + 0.003*Tr + 0.054*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-100         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.006*Tr + 0.150*C	ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
HZ-011	ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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-102         0.000         0.000           ZH-011         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-101         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN )           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-00110         1.444 + 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.150*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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.041*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-0110         1.444 - 0.003*Tr + 0.041*C         1.673 + 0.006*Tr + 0.054*C           F-00110         0.413 - 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.150*C           F-10000         0.303 - 0.006*Tr + 0.114*C         1.676 + 0.010*Tr + 0.150*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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-10100         1.444 - 0.003*Tr + 0.014*C         1.673 + 0.006*Tr + 0.150*C           R-00110         1.444 + 0.041*C         1.676 + 0.010*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.151*C	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.228 + 0.039*C	
F-10100       0.414 + 0.002*Tr + 0.113*C       0.444 - 0.010*Tr + 0.150*C         R-10100       1.444 - 0.003*Tr + 0.041*C       1.673 + 0.006*Tr + 0.054*C         F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C			0.339 + 0.005*Tr + 0.151*C
R-10100	Path TM-IO (for pins A EN LOWEMI 1	ΓA TEN )	
F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	F-10100	0.414 + 0.002*Tr + 0.113*C	
R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-10000 0.303 - 0.006*Tr + 0.114*C 0.331 - 0.001*Tr + 0.151*C  R-10000 1.222 + 0.007*Tr + 0.039*C 1.403 + 0.003*Tr + 0.052*C  F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-10000 1.222 + 0.007*Tr + 0.039*C 1.403 + 0.003*Tr + 0.052*C F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	R-00110		1.676 + 0.010*Tr + 0.054*C
F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
	R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
R-00010 1.224 - 0.011*Tr + 0.039*C 1.408 + 0.002*Tr + 0.052*C	F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
	R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# Internal Energy (at minimum output load)

Pin Cyala	Internal Energy (uW/MHz)					
Pin Cycle	best 1.10 125 (Min best 1.10 125 (Max values) values)		worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)		
For vdd						
IO toggling/Output stable	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr		
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr		
For vdde1v8			1			
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr		
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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	-	-	-	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C	
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C	
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C	
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr	
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr	
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr	
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr	
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C	
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C	
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C	
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C	
Path IO-ZI (for pins HYST )		I .	
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C	
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C	
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C	
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM	)	1	
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C	
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C	
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C	
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C	
Path TEN-IO (for pins LOWEMI TM )		1	
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr	
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr	
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr	
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr	
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C	
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C	
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C	
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C	
Path TM-IO (for pins EN LOWEMI TEN	)		
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr	
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr	
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr	



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LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	•
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

# **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C
Path IO-ZI (for pins HYST )	-	
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	М)	
F-101	0.410 + 0.113*C	0.443 + 0.150*C
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C	
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C	
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C	
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C	
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C	
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C	
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C	
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C	
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C	
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C	
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C	
Path TM-IO (for pins A EN LOWEMI	TA TEN)		
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C	
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C	
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C	
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C	
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C	
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C	
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C	
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C	

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM )					
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN )	·				
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M )				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8				•	
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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	-	-	-	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )		I .			
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	)	1			
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )		1			
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN	)				
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

# **Transition Time**

Fuent	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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C		
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C		
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C		
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C		
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C		
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C		
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM				
F-101	0.410 + 0.113*C	0.443 + 0.150*C		
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C		
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C		
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	Faiailletei	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM )					
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN )	·				
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M )				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI TA T		
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

# 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr		
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr		
For vdde1v8			1			
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr		
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

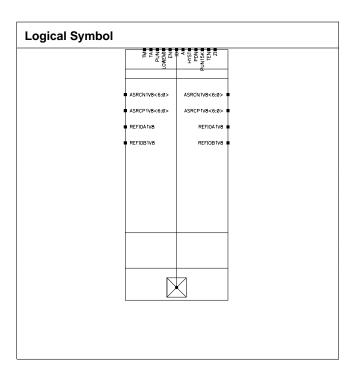
### **Physical Dimensions**

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	-	-	-	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	<b>(1)</b>			
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN	N )	'		
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	•
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

### **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C		
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C		
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C		
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C		
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C		
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C		
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.410 + 0.113*C	0.443 + 0.150*C		
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C		
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C		
R-001	1.221 + 0.004*Tr + 0.039*C 1.404 - 0.001*Tr +			
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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

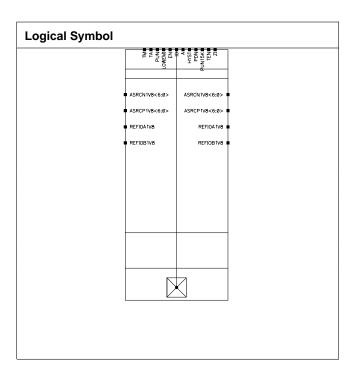
#### **Physical Dimensions**

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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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		
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

### **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C		
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C		
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C		
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C		
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C		
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C		
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	0.410 + 0.113*C	0.443 + 0.150*C		
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C		
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C		
R-001	1.221 + 0.004*Tr + 0.039*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8	1	1	1	1	
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA T	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C	
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C	
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C	
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C	
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C	
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C	
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C	
Path IO-ZI (for pins HYST )	•		
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C	
Path TA-IO (for pins LOWEMI TEN T	M)		
F-101	0.410 + 0.113*C	0.443 + 0.150*C	
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C	
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C	
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
Table   Tabl	ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*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         1.449 + 0.006°Tr + 0.041°C         1.685 - 0.013°Tr + 0.054°C           ZL-011         0.428 + 0.003°Tr + 0.113°C         0.455 + 0.003°Tr + 0.150°C           ZH-110         1.446 + 0.007°Tr + 0.041°C         1.679 - 0.003°Tr + 0.054°C           ZL-110         0.427 + 0.002°Tr + 0.113°C         0.453 + 0.150°C           ZH-001         1.230 - 0.008°Tr + 0.039°C         1.411 + 0.052°C           ZL-001         0.317 + 0.114°C         0.341 - 0.007°Tr + 0.151°C           ZH-100         1.228 + 0.039°C         1.407 + 0.052°C           ZL-100         0.316 + 0.001°Tr + 0.113°C         0.339 + 0.005°Tr + 0.151°C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         1.444 + 0.002°Tr + 0.113°C         0.444 - 0.010°Tr + 0.151°C           R-10100	ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
HZ-011	ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-101         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-00110         1.444 - 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.150*C           R-00110         1.444 + 0.001*Tr + 0.113*C </td <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-10100         1.444 - 0.003*Tr + 0.041*C         1.673 + 0.006*Tr + 0.054*C           F-00110         0.413 - 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         1.676 + 0.010*Tr + 0.151*C <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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-10100         1.444 - 0.003*Tr + 0.011*C         1.676 + 0.010*Tr + 0.150*C           R-00110         1.444 + 0.041*C         1.676 + 0.010*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.054*C           F-10000 <td< td=""><td>LZ-110</td><td>0.000</td><td>0.000</td></td<>	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.228 + 0.039*C	
F-10100       0.414 + 0.002*Tr + 0.113*C       0.444 - 0.010*Tr + 0.150*C         R-10100       1.444 - 0.003*Tr + 0.041*C       1.673 + 0.006*Tr + 0.054*C         F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
R-10100	Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-10000 1.222 + 0.007*Tr + 0.039*C 1.403 + 0.003*Tr + 0.052*C F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
	R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
R-00010 1.224 - 0.011*Tr + 0.039*C 1.408 + 0.002*Tr + 0.052*C	F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
	R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

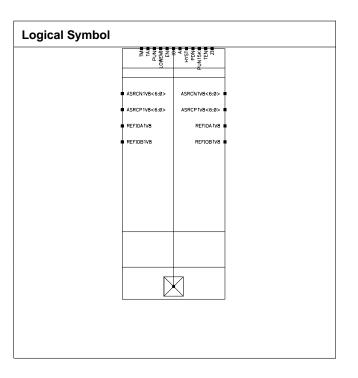
#### **Physical Dimensions**

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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



0.414 + 0.270*Tr	0.583 + 0.446*Tr
0.945 + 0.188*Tr	1.149 + 0.382*Tr
0.389 + 0.054*Tr	0.536 + 0.271*Tr
0.973 + 0.255*Tr	1.196 + 0.423*Tr
0.414 + 0.270*Tr	0.583 + 0.448*Tr
5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
EN)	
2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C
	0.945 + 0.188*Tr 0.389 + 0.054*Tr 0.973 + 0.255*Tr 0.414 + 0.270*Tr 5.415 + 0.207*Tr + 0.091*C 2.359 + 0.210*Tr + 0.145*C 5.427 - 0.027*Tr + 0.091*C 2.378 - 0.021*Tr + 0.145*C 4.585 + 0.198*Tr + 0.082*C 1.853 + 0.202*Tr + 0.142*C 4.598 - 0.031*Tr + 0.082*C 1.868 - 0.024*Tr + 0.142*C  EN)  2.295 - 0.016*Tr + 0.145*C 5.386 + 0.244*Tr + 0.090*C 2.277 + 0.227*Tr + 0.145*C 5.360 + 0.015*Tr + 0.090*C 1.816 - 0.025*Tr + 0.142*C 4.565 + 0.259*Tr + 0.142*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M )				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			1		
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

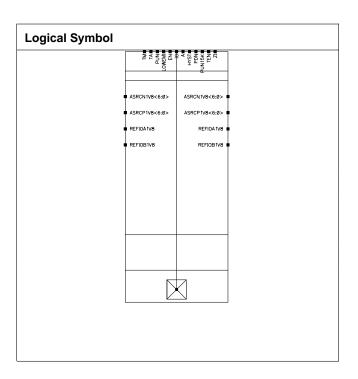
#### **Physical Dimensions**

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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	<b>(1)</b>				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN	N )	'			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



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LZ-110	0.414 + 0.270*Tr	0.583 + 0.446*Tr
HZ-001	0.945 + 0.188*Tr	1.149 + 0.382*Tr
LZ-001	0.389 + 0.054*Tr	0.536 + 0.271*Tr
HZ-100	0.973 + 0.255*Tr	1.196 + 0.423*Tr
LZ-100	0.414 + 0.270*Tr	0.583 + 0.448*Tr
ZH-011	5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
ZL-011	2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
ZH-110	5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
ZL-110	2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
ZH-001	4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
ZL-001	1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
ZH-100	4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
ZL-100	1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
R-10100	5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
F-00110	2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
R-00110	5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
F-10000	1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
R-10000	4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
F-00010	1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
R-00010	4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C

### **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C		
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C		
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C		
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C		
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C		
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C		
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.410 + 0.113*C	0.443 + 0.150*C		
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C		
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C		
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
Table   Tabl	ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*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         1.449 + 0.006°Tr + 0.041°C         1.685 - 0.013°Tr + 0.054°C           ZL-011         0.428 + 0.003°Tr + 0.113°C         0.455 + 0.003°Tr + 0.150°C           ZH-110         1.446 + 0.007°Tr + 0.041°C         1.679 - 0.003°Tr + 0.054°C           ZL-110         0.427 + 0.002°Tr + 0.113°C         0.453 + 0.150°C           ZH-001         1.230 - 0.008°Tr + 0.039°C         1.411 + 0.052°C           ZL-001         0.317 + 0.114°C         0.341 - 0.007°Tr + 0.151°C           ZH-100         1.228 + 0.039°C         1.407 + 0.052°C           ZL-100         0.316 + 0.001°Tr + 0.113°C         0.339 + 0.005°Tr + 0.151°C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         1.444 + 0.002°Tr + 0.113°C         0.444 - 0.010°Tr + 0.151°C           R-10100	ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
HZ-011	ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-101         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-00110         1.444 - 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.150*C           R-00110         1.444 + 0.001*Tr + 0.113*C </td <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-10100         1.444 - 0.003*Tr + 0.041*C         1.673 + 0.006*Tr + 0.054*C           F-00110         0.413 - 0.001*Tr + 0.113*C         0.444 - 0.006*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         1.676 + 0.010*Tr + 0.151*C <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         1.449 + 0.006*Tr + 0.041*C         1.685 - 0.013*Tr + 0.054*C           ZL-011         0.428 + 0.003*Tr + 0.113*C         0.455 + 0.003*Tr + 0.150*C           ZH-110         1.446 + 0.007*Tr + 0.041*C         1.679 - 0.003*Tr + 0.054*C           ZL-110         0.427 + 0.002*Tr + 0.113*C         0.453 + 0.150*C           ZH-001         1.230 - 0.008*Tr + 0.039*C         1.411 + 0.052*C           ZL-001         0.317 + 0.114*C         0.341 - 0.007*Tr + 0.151*C           ZH-100         1.228 + 0.039*C         1.407 + 0.052*C           ZL-100         0.316 + 0.001*Tr + 0.114*C         0.339 + 0.005*Tr + 0.151*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.414 + 0.002*Tr + 0.113*C         0.444 - 0.010*Tr + 0.150*C           R-10100         1.444 - 0.003*Tr + 0.011*C         1.676 + 0.010*Tr + 0.150*C           R-00110         1.444 + 0.041*C         1.676 + 0.010*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.054*C           F-10000         0.303 - 0.006*Tr + 0.114*C         0.331 - 0.001*Tr + 0.054*C           F-10000 <td< td=""><td>LZ-110</td><td>0.000</td><td>0.000</td></td<>	LZ-110	0.000	0.000
HZ-100	HZ-001	0.000	0.000
LZ-100	LZ-001	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	HZ-100	0.000	0.000
ZL-011	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.228 + 0.039*C	
F-10100       0.414 + 0.002*Tr + 0.113*C       0.444 - 0.010*Tr + 0.150*C         R-10100       1.444 - 0.003*Tr + 0.041*C       1.673 + 0.006*Tr + 0.054*C         F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
R-10100	Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-00110       0.413 - 0.001*Tr + 0.113*C       0.444 - 0.006*Tr + 0.150*C         R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-00110       1.444 + 0.041*C       1.676 + 0.010*Tr + 0.054*C         F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-10000       0.303 - 0.006*Tr + 0.114*C       0.331 - 0.001*Tr + 0.151*C         R-10000       1.222 + 0.007*Tr + 0.039*C       1.403 + 0.003*Tr + 0.052*C         F-00010       0.302 + 0.001*Tr + 0.114*C       0.329 - 0.002*Tr + 0.151*C	F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-10000 1.222 + 0.007*Tr + 0.039*C 1.403 + 0.003*Tr + 0.052*C F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-00010 0.302 + 0.001*Tr + 0.114*C 0.329 - 0.002*Tr + 0.151*C	F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
	R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
R-00010 1.224 - 0.011*Tr + 0.039*C 1.408 + 0.002*Tr + 0.052*C	F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
	R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

### Internal Energy (at minimum output load)

Din Cyolo	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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

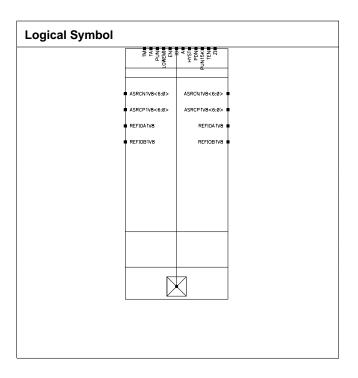
#### **Physical Dimensions**

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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)   Delay thres. rising (V)   0.66   0.54     IO (Input)   Delay thres. falling (V)   0.66   0.54     IO (Input)   Slope thres. low (V)   -				
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 - 1.32   0.0 - 1.08     IO (Output)   Delay thres. rising (V)   0.66   0.54     IO (Output)   Delay thres. falling (V)   0.66   0.54     IO (Output)   Slope thres. low (V)   0.396   0.324	IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)   Slope thres. high (V)   -   -   -     IO (Output)   Min Transition (ns)   -   -     IO (Output)   Max Transition (ns)   -   -     IO (Output)   Swing (V)   0.0 - 1.32   0.0 - 1.08     IO (Output)   Delay thres. rising (V)   0.66   0.54     IO (Output)   Delay thres. falling (V)   0.66   0.54     IO (Output)   Slope thres. low (V)   0.396   0.324	IO (Input)	Delay thres. falling (V)	0.66	0.54
IO (Output)   Min Transition (ns)   -     -	IO (Input)	Slope thres. low (V)	-	-
IO (Output)   Max Transition (ns)   -     -	IO (Input)	Slope thres. high (V)	-	-
IO (Output)         Swing (V)         0.0 - 1.32         0.0 - 1.08           IO (Output)         Delay thres. rising (V)         0.66         0.54           IO (Output)         Delay thres. falling (V)         0.66         0.54           IO (Output)         Slope thres. low (V)         0.396         0.324	IO (Output)	Min Transition (ns)	-	-
IO (Output)         Delay thres. rising (V)         0.66         0.54           IO (Output)         Delay thres. falling (V)         0.66         0.54           IO (Output)         Slope thres. low (V)         0.396         0.324	IO (Output)	Max Transition (ns)	-	-
IO (Output)         Delay thres. falling (V)         0.66         0.54           IO (Output)         Slope thres. low (V)         0.396         0.324	IO (Output)	Swing (V)	0.0 - 1.32	0.0 - 1.08
IO (Output) Slope thres. low (V) 0.396 0.324	IO (Output)	Delay thres. rising (V)	0.66	0.54
	IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output) Slope thres. high (V) 0.924 0.756	IO (Output)	Slope thres. low (V)	0.396	0.324
	IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C		
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C		
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C		
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr		
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr		
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr		
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr		
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C		
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C		
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C		
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C		
Path IO-ZI (for pins HYST )				
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C		
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C		
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C		
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM )				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C		
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C		
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C		
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr		
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr		
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr		
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr		
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C		
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C		
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C		
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C		
Path TM-IO (for pins EN LOWEMI TEN )	·			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr		
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr		
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr		



0.414 + 0.270*Tr	0.583 + 0.446*Tr
0.945 + 0.188*Tr	1.149 + 0.382*Tr
0.389 + 0.054*Tr	0.536 + 0.271*Tr
0.973 + 0.255*Tr	1.196 + 0.423*Tr
0.414 + 0.270*Tr	0.583 + 0.448*Tr
5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
EN)	
2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C
	0.945 + 0.188*Tr 0.389 + 0.054*Tr 0.973 + 0.255*Tr 0.414 + 0.270*Tr 5.415 + 0.207*Tr + 0.091*C 2.359 + 0.210*Tr + 0.145*C 5.427 - 0.027*Tr + 0.091*C 2.378 - 0.021*Tr + 0.145*C 4.585 + 0.198*Tr + 0.082*C 1.853 + 0.202*Tr + 0.142*C 4.598 - 0.031*Tr + 0.082*C 1.868 - 0.024*Tr + 0.142*C  EN)  2.295 - 0.016*Tr + 0.145*C 5.386 + 0.244*Tr + 0.090*C 2.277 + 0.227*Tr + 0.145*C 5.360 + 0.015*Tr + 0.090*C 1.816 - 0.025*Tr + 0.142*C 4.565 + 0.259*Tr + 0.142*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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M )				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*C
Path TM-IO (for pins EN LOWEMI TEN	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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

### **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

## 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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			1		
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr	
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.

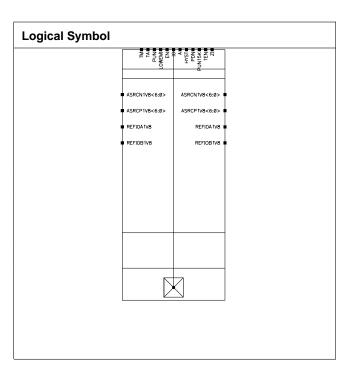
#### **Physical Dimensions**

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	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.	0.0326	0.0318
IO Input Cap.	1.4499	1.3757
IO Max Load	101.450	101.376
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	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.281 + 0.206*Tr + 0.145*C	3.812 + 0.386*Tr + 0.194*C			
R-010	5.359 + 0.005*Tr + 0.091*C	9.310 + 0.239*Tr + 0.112*C			
F-000	1.808 + 0.190*Tr + 0.142*C	2.985 + 0.392*Tr + 0.191*C			
R-000	4.544 + 0.010*Tr + 0.082*C	7.801 + 0.246*Tr + 0.103*C			
Path EN-IO (for pins LOWEMI TM )					
HZ-10	0.953 + 0.132*Tr	1.161 + 0.372*Tr			
LZ-10	0.616 + 0.136*Tr	0.927 + 0.373*Tr			
HZ-00	0.950 + 0.139*Tr	1.159 + 0.377*Tr			
LZ-00	0.616 + 0.137*Tr	0.926 + 0.376*Tr			
ZH-10	5.418 + 0.171*Tr + 0.091*C	9.440 + 0.498*Tr + 0.112*C			
ZL-10	2.357 + 0.180*Tr + 0.145*C	3.982 + 0.479*Tr + 0.194*C			
ZH-00	4.589 + 0.163*Tr + 0.082*C	7.913 + 0.490*Tr + 0.103*C			
ZL-00	1.853 + 0.165*Tr + 0.142*C	3.113 + 0.474*Tr + 0.191*C			
Path IO-ZI (for pins HYST )					
F-1	0.577 + 0.268*Tr + 0.109*C	0.760 + 0.523*Tr + 0.189*C			
R-1	0.554 + 0.207*Tr + 0.123*C	0.686 + 0.444*Tr + 0.160*C			
F-0	0.527 + 0.109*Tr + 0.177*C	0.853 + 0.256*Tr + 0.240*C			
R-0	0.518 + 0.034*Tr + 0.124*C	0.808 + 0.155*Tr + 0.168*C			
Path TA-IO (for pins LOWEMI TEN TM	<b>(1)</b>				
F-101	2.281 + 0.205*Tr + 0.145*C	3.815 + 0.392*Tr + 0.194*C			
R-101	5.360 + 0.010*Tr + 0.091*C	9.307 + 0.246*Tr + 0.112*C			
F-001	1.807 + 0.201*Tr + 0.142*C	2.986 + 0.390*Tr + 0.191*C			
R-001	4.542 + 0.015*Tr + 0.082*C	7.798 + 0.251*Tr + 0.103*C			
Path TEN-IO (for pins LOWEMI TM )					
HZ-01	0.949 + 0.141*Tr	1.158 + 0.373*Tr			
LZ-01	0.616 + 0.138*Tr	0.925 + 0.377*Tr			
HZ-11	0.951 + 0.130*Tr	1.161 + 0.375*Tr			
LZ-11	0.616 + 0.137*Tr	0.925 + 0.378*Tr			
ZH-01	4.587 + 0.167*Tr + 0.082*C	7.910 + 0.492*Tr + 0.103*C			
ZL-01	1.852 + 0.166*Tr + 0.142*C	3.115 + 0.478*Tr + 0.191*C			
ZH-11	5.416 + 0.174*Tr + 0.091*C	9.437 + 0.492*Tr + 0.112*C			
ZL-11	2.357 + 0.180*Tr + 0.145*C	3.984 + 0.473*Tr + 0.194*C			
Path TM-IO (for pins EN LOWEMI TEN	N )	'			
HZ-011	0.948 + 0.185*Tr	1.151 + 0.380*Tr			
LZ-011	0.389 + 0.047*Tr	0.537 + 0.266*Tr			
HZ-110	0.973 + 0.254*Tr	1.198 + 0.419*Tr			



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0.414 + 0.270*Tr	0.583 + 0.446*Tr
0.945 + 0.188*Tr	1.149 + 0.382*Tr
0.389 + 0.054*Tr	0.536 + 0.271*Tr
0.973 + 0.255*Tr	1.196 + 0.423*Tr
0.414 + 0.270*Tr	0.583 + 0.448*Tr
5.415 + 0.207*Tr + 0.091*C	9.426 + 0.498*Tr + 0.112*C
2.359 + 0.210*Tr + 0.145*C	3.971 + 0.486*Tr + 0.194*C
5.427 - 0.027*Tr + 0.091*C	9.456 + 0.218*Tr + 0.112*C
2.378 - 0.021*Tr + 0.145*C	4.003 + 0.238*Tr + 0.194*C
4.585 + 0.198*Tr + 0.082*C	7.897 + 0.494*Tr + 0.103*C
1.853 + 0.202*Tr + 0.142*C	3.100 + 0.483*Tr + 0.191*C
4.598 - 0.031*Tr + 0.082*C	7.928 + 0.218*Tr + 0.103*C
1.868 - 0.024*Tr + 0.142*C	3.132 + 0.241*Tr + 0.191*C
EN)	
2.295 - 0.016*Tr + 0.145*C	3.821 + 0.226*Tr + 0.194*C
5.386 + 0.244*Tr + 0.090*C	9.342 + 0.450*Tr + 0.112*C
2.277 + 0.227*Tr + 0.145*C	3.801 + 0.368*Tr + 0.194*C
5.360 + 0.015*Tr + 0.090*C	9.300 + 0.232*Tr + 0.112*C
1.816 - 0.025*Tr + 0.142*C	2.994 + 0.226*Tr + 0.191*C
4.565 + 0.259*Tr + 0.082*C	7.836 + 0.446*Tr + 0.103*C
1.801 + 0.223*Tr + 0.142*C	2.972 + 0.369*Tr + 0.191*C
4.542 + 0.015*Tr + 0.082*C	7.795 + 0.224*Tr + 0.103*C
	0.945 + 0.188*Tr 0.389 + 0.054*Tr 0.973 + 0.255*Tr 0.414 + 0.270*Tr 5.415 + 0.207*Tr + 0.091*C 2.359 + 0.210*Tr + 0.145*C 5.427 - 0.027*Tr + 0.091*C 2.378 - 0.021*Tr + 0.145*C 4.585 + 0.198*Tr + 0.082*C 1.853 + 0.202*Tr + 0.142*C 4.598 - 0.031*Tr + 0.082*C 1.868 - 0.024*Tr + 0.142*C  EN)  2.295 - 0.016*Tr + 0.145*C 5.386 + 0.244*Tr + 0.090*C 2.277 + 0.227*Tr + 0.145*C 5.360 + 0.015*Tr + 0.090*C 1.816 - 0.025*Tr + 0.142*C 4.565 + 0.259*Tr + 0.142*C

### **Transition Time**

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	0.412 + 0.004*Tr + 0.113*C	0.444 - 0.008*Tr + 0.150*C			
R-010	1.441 + 0.008*Tr + 0.041*C	1.681 - 0.013*Tr + 0.054*C			
F-000	0.298 + 0.004*Tr + 0.114*C	0.329 + 0.151*C			
R-000	1.222 - 0.004*Tr + 0.039*C	1.405 + 0.006*Tr + 0.052*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	1.448 + 0.007*Tr + 0.041*C	1.682 - 0.011*Tr + 0.054*C			
ZL-10	0.427 + 0.007*Tr + 0.113*C	0.460 - 0.010*Tr + 0.150*C			
ZH-00	1.230 - 0.007*Tr + 0.039*C	1.410 + 0.052*C			
ZL-00	0.318 + 0.114*C	0.340 - 0.008*Tr + 0.151*C			
Path IO-ZI (for pins HYST )					
F-1	0.007 + 0.138*C	0.009 + 0.189*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 + 0.085*C	0.009 + 0.130*C			
Path TA-IO (for pins LOWEMI TEN T	M)				
F-101	0.410 + 0.113*C	0.443 + 0.150*C			
R-101	1.440 + 0.008*Tr + 0.041*C	1.674 + 0.005*Tr + 0.054*C			
F-001	0.301 + 0.003*Tr + 0.114*C	0.328 + 0.151*C			
R-001	1.221 + 0.004*Tr + 0.039*C	1.404 - 0.001*Tr + 0.052*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	1.231 - 0.009*Tr + 0.039*C	1.411 + 0.003*Tr + 0.052*C
ZL-01	0.316 + 0.003*Tr + 0.114*C	0.340 - 0.010*Tr + 0.151*C
ZH-11	1.449 + 0.002*Tr + 0.041*C	1.690 + 0.001*Tr + 0.054*C
ZL-11	0.426 + 0.003*Tr + 0.113*C	0.458 - 0.009*Tr + 0.150*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	1.449 + 0.006*Tr + 0.041*C	1.685 - 0.013*Tr + 0.054*C
ZL-011	0.428 + 0.003*Tr + 0.113*C	0.455 + 0.003*Tr + 0.150*C
ZH-110	1.446 + 0.007*Tr + 0.041*C	1.679 - 0.003*Tr + 0.054*C
ZL-110	0.427 + 0.002*Tr + 0.113*C	0.453 + 0.150*C
ZH-001	1.230 - 0.008*Tr + 0.039*C	1.411 + 0.052*C
ZL-001	0.317 + 0.114*C	0.341 - 0.007*Tr + 0.151*C
ZH-100	1.228 + 0.039*C	1.407 + 0.052*C
ZL-100	0.316 + 0.001*Tr + 0.114*C	0.339 + 0.005*Tr + 0.151*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.414 + 0.002*Tr + 0.113*C	0.444 - 0.010*Tr + 0.150*C
R-10100	1.444 - 0.003*Tr + 0.041*C	1.673 + 0.006*Tr + 0.054*C
F-00110	0.413 - 0.001*Tr + 0.113*C	0.444 - 0.006*Tr + 0.150*C
R-00110	1.444 + 0.041*C	1.676 + 0.010*Tr + 0.054*C
F-10000	0.303 - 0.006*Tr + 0.114*C	0.331 - 0.001*Tr + 0.151*C
R-10000	1.222 + 0.007*Tr + 0.039*C	1.403 + 0.003*Tr + 0.052*C
F-00010	0.302 + 0.001*Tr + 0.114*C	0.329 - 0.002*Tr + 0.151*C
R-00010	1.224 - 0.011*Tr + 0.039*C	1.408 + 0.002*Tr + 0.052*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.549e-03
worst 0.90 -40	6.623e-07	2.022e-07

### Internal Energy (at minimum output load)

Din Cyolo	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	0.505 + 0.314*Tr	0.634 + 0.940*Tr	0.262	0.338 + 0.008*Tr		
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr		
For vdde1v8						
IO toggling/Output stable	4.027 + 0.013*Tr	4.684 - 0.026*Tr	2.317 + 0.004*Tr	2.641 - 0.028*Tr		
ZI toggling	0.190 + 0.085*Tr	0.264 + 0.161*Tr	0.101	0.135 + 0.024*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.	1.4990	1.4233
IO Max Load	201.499	201.423
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		
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C	
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C	
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C	
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr	
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr	
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr	
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr	
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C	
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C	
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C	
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C	
Path IO-ZI (for pins HYST )		l	
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C	
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C	
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C	
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM)		1	
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C	
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C	
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C	
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C	
Path TEN-IO (for pins LOWEMI TM )		1	
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr	
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr	
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr	
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr	
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C	
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C	
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C	
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C	
Path TM-IO (for pins EN LOWEMI TEN )	,	1	
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr	
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr	
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr	



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C
Path IO-ZI (for pins HYST )	'	
F-1	0.007 + 0.138*C	0.009 + 0.188*C
R-1	0.006 + 0.086*C	0.009 + 0.131*C
F-0	0.007 + 0.137*C	0.009 + 0.188*C
R-0	0.006 + 0.085*C	0.008 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M )	,
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA TI	EN)	
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8	1	1	1	1
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

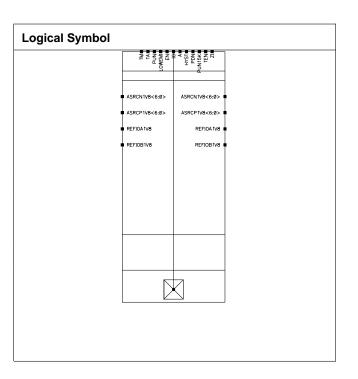
### **Physical Dimensions**

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	-	-	-	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.	0.0377	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.	1.4990	1.4233
IO Max Load	201.499	201.423
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C
Path IO-ZI (for pins HYST )	I	
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C
Path TEN-IO (for pins LOWEMI TM )	I	
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C

Frant	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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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         0.357 + 0.007*Tr + 0.076*C         0.391 - 0.001*Tr + 0.100*C           ZH-11         1.315 - 0.004*Tr + 0.028*C         1.511 + 0.004*Tr + 0.039*C           ZL-11         0.486 + 0.003*Tr + 0.075*C         0.550 - 0.010*Tr + 0.100*C           Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-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           LZ-010         0.000         0.000           LZ-101         0.000         0.000           LZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.000*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-101         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-101         0.356 + 0.076*C         0.339 + 0.002*Tr +	LZ-11	0.000	0.000
ZH-11	ZH-01	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
Table   Tabl	ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-100         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.006*Tr + 0.076*C         0.524 + 0.006*Tr + 0.100*C	ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
HZ-011	ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-101         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.275 + 0.039*C         0.390 + 0.003*Tr + 0.100*C           ZH-100         0.359 - 0.003*Tr + 0.076*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-00110         0.4771 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.100*C <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.003*Tr + 0.008*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         1.305 + 0.028*C         1.493 + 0.015*Tr + 0.009*C           F-00110         0.471 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.009*Tr + 0.009*C           F-10000         0.340 + 0.003*Tr + 0.076*C         0.376 + 0.005*Tr + 0.009*C           F-10000         0.340 + 0.002*Tr + 0.027*C         1.271 + 0.005*Tr + 0.009*C	LZ-110	0.000	0.000
HZ-100	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
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110		0.535 + 0.003*Tr + 0.100*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
F-10100       0.473 + 0.075*C       0.524 + 0.006*Tr + 0.100*C         R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	Path TM-IO (for pins A EN LOWEMI 7	TA TEN)	
F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-10000 1.115 + 0.002*Tr + 0.027*C 1.271 + 0.005*Tr + 0.039*C F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
	R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
R-00010 1.117 - 0.007*Tr + 0.027*C 1.272 + 0.001*Tr + 0.039*C	F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
	R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			•		
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr	
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.	1.4990	1.4233
IO Max Load	201.499	201.423
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		
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN )		1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C
Path IO-ZI (for pins HYST )	'	
F-1	0.007 + 0.138*C	0.009 + 0.188*C
R-1	0.006 + 0.086*C	0.009 + 0.131*C
F-0	0.007 + 0.137*C	0.009 + 0.188*C
R-0	0.006 + 0.085*C	0.008 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M )	,
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA TI	EN)	
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8					
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr	
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

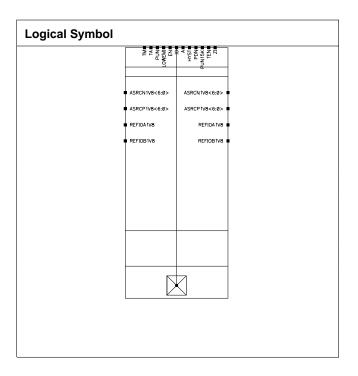
### **Physical Dimensions**

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.	1.4990	1.4233
IO Max Load	201.499	201.423
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Frank	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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C
Path EN-IO (for pins LOWEMI TM)		1
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C
Path IO-ZI (for pins HYST )	-	1
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN T	M )	1
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C
Path TEN-IO (for pins LOWEMI TM)		1
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C
Path TM-IO (for pins EN LOWEMI TE	EN )	,
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr



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0.420 + 0.270*Tr	0.590 + 0.447*Tr
1.032 + 0.180*Tr	1.225 + 0.387*Tr
0.397 + 0.050*Tr	0.544 + 0.269*Tr
1.053 + 0.262*Tr	1.271 + 0.420*Tr
0.420 + 0.271*Tr	0.590 + 0.446*Tr
5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
EN )	
2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C
	1.032 + 0.180*Tr  0.397 + 0.050*Tr  1.053 + 0.262*Tr  0.420 + 0.271*Tr  5.067 + 0.202*Tr + 0.055*C  2.694 + 0.220*Tr + 0.096*C  5.080 - 0.029*Tr + 0.095*C  2.716 - 0.022*Tr + 0.096*C  4.315 + 0.211*Tr + 0.051*C  2.088 + 0.207*Tr + 0.094*C  4.331 - 0.028*Tr + 0.051*C  2.111 - 0.025*Tr + 0.094*C <b>EN)</b> 2.626 - 0.020*Tr + 0.096*C  5.052 + 0.264*Tr + 0.055*C  2.611 + 0.218*Tr + 0.096*C  5.029 + 0.022*Tr + 0.096*C  4.313 + 0.261*Tr + 0.094*C  4.313 + 0.261*Tr + 0.094*C

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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C
Path IO-ZI (for pins HYST )	'	
F-1	0.007 + 0.138*C	0.009 + 0.188*C
R-1	0.006 + 0.086*C	0.009 + 0.131*C
F-0	0.007 + 0.137*C	0.009 + 0.188*C
R-0	0.006 + 0.085*C	0.008 + 0.130*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA TE		
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## Internal Energy (at minimum output load)

Din Cyala		Internal Ener	gy (uW/MHz)	
Pin Cycle	Pin Cycle best 1.10 125 (Min best 1.1 values) va		worst 0.90 -40 (Min values)	worst 0.90 -40 (Max values)
For vdd				
IO toggling/Output stable	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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(pF)	
raiametei	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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN )		1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C

Event	Value (as a function of	Value (as a function of C in pF and Tr in nS)		
Everil	best 1.10 125	worst 0.90 -40		
Path A-IO (for pins EN LOWEMI TM )	,			
F-010	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )	•			
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
1 00010	0.0.0	0.000 0.000 11 1 0.100 0

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			1	1
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

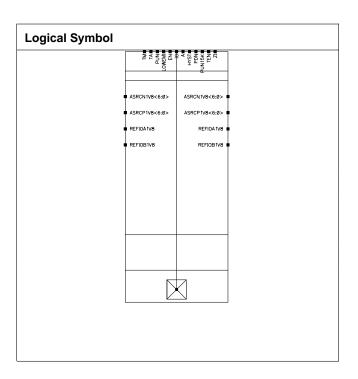
### **Physical Dimensions**

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	-	-	-	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.	0.0377	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.	1.4990	1.4233
IO Max Load	201.499	201.423
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C
Path IO-ZI (for pins HYST )	I	
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C
Path TEN-IO (for pins LOWEMI TM )	I	
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C
Path TM-IO (for pins EN LOWEMI TEN	)	1
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA	A TEN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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         0.357 + 0.007*Tr + 0.076*C         0.391 - 0.001*Tr + 0.100*C           ZH-11         1.315 - 0.004*Tr + 0.028*C         1.511 + 0.004*Tr + 0.039*C           ZL-11         0.486 + 0.003*Tr + 0.075*C         0.550 - 0.010*Tr + 0.100*C           Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-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           LZ-010         0.000         0.000           LZ-101         0.000         0.000           LZ-100         0.000         0.000           LZ-101         0.000         0.000           LZ-101         0.000*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-101         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-101         0.356 + 0.076*C         0.339 + 0.002*Tr +	LZ-11	0.000	0.000
ZH-11	ZH-01	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
Table   Tabl	ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-100         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.006*Tr + 0.076*C         0.524 + 0.006*Tr + 0.100*C	ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
HZ-011	ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-101         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.275 + 0.039*C         0.390 + 0.003*Tr + 0.100*C           ZH-100         0.359 - 0.003*Tr + 0.076*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-00110         0.4771 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.100*C <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.003*Tr + 0.008*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         1.305 + 0.028*C         1.493 + 0.015*Tr + 0.009*C           F-00110         0.471 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.009*Tr + 0.009*C           F-10000         0.340 + 0.003*Tr + 0.076*C         0.376 + 0.005*Tr + 0.009*C           F-10000         0.340 + 0.002*Tr + 0.027*C         1.271 + 0.005*Tr + 0.009*C	LZ-110	0.000	0.000
HZ-100	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
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110		0.535 + 0.003*Tr + 0.100*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
F-10100       0.473 + 0.075*C       0.524 + 0.006*Tr + 0.100*C         R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	Path TM-IO (for pins A EN LOWEMI 7	TA TEN)	
F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-10000 1.115 + 0.002*Tr + 0.027*C 1.271 + 0.005*Tr + 0.039*C F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
	R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
R-00010 1.117 - 0.007*Tr + 0.027*C 1.272 + 0.001*Tr + 0.039*C	F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
	R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr	
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr	
For vdde1v8			•		
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr	
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

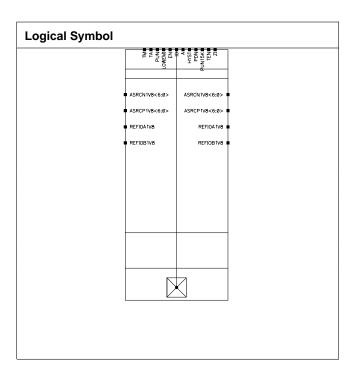
### **Physical Dimensions**

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)	
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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **Propagation Delay**

Frank	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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C	
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C	
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C	
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C	
Path EN-IO (for pins LOWEMI TM )			
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr	
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr	
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr	
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr	
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C	
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C	
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C	
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C	
Path IO-ZI (for pins HYST )			
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C	
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C	
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C	
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C	
Path TA-IO (for pins LOWEMI TEN TM	)		
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C	
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C	
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C	
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C	
Path TEN-IO (for pins LOWEMI TM )			
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr	
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr	
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr	
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr	
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C	
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C	
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C	
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C	
Path TM-IO (for pins EN LOWEMI TEN	)		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr	
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr	
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr	



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C

Event	Value (as a function of C in pF and Tr in nS)		
Everil	best 1.10 125	worst 0.90 -40	
Path A-IO (for pins EN LOWEMI TM )	,		
F-010	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C	
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C	
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C	
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C	
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C	
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C	
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C	
Path IO-ZI (for pins HYST )	•		
F-1	0.007 + 0.138*C	0.009 + 0.188*C	
R-1	0.006 + 0.086*C	0.009 + 0.131*C	
F-0	0.007 + 0.137*C	0.009 + 0.188*C	
R-0	0.006 + 0.085*C	0.008 + 0.130*C	
Path TA-IO (for pins LOWEMI TEN TM)			
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C	
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C	
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C	
R-001	1.116 + 0.027*C	1.270 + 0.039*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         0.357 + 0.007*Tr + 0.076*C         0.391 - 0.001*Tr + 0.100*C           ZH-11         1.315 - 0.004*Tr + 0.028*C         1.511 + 0.004*Tr + 0.039*C           ZL-11         0.486 + 0.003*Tr + 0.075*C         0.550 - 0.010*Tr + 0.100*C           Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-111         0.000         0.000           HZ-001         0.000         0.000           LZ-011         0.000         0.000           LZ-001         0.000         0.000           LZ-001         0.000         0.000           LZ-100         0.000         0.000           LZ-101         0.020*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-101         0.356 + 0.076*C         0.339 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0	LZ-11	0.000	0.000
ZH-11	ZH-01	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-11	ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-100         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         The total color of the	ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
HZ-011	ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-101         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.275 + 0.039*C         0.390 + 0.003*Tr + 0.100*C           ZH-100         0.359 - 0.003*Tr + 0.076*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         0.4771 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.100*C <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.003*Tr + 0.008*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         1.305 + 0.028*C         1.493 + 0.015*Tr + 0.009*C           F-00110         0.471 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.009*Tr + 0.009*C           F-10000         0.340 + 0.003*Tr + 0.076*C         0.376 + 0.005*Tr + 0.009*C           F-10000         0.340 + 0.002*Tr + 0.027*C         1.271 + 0.005*Tr + 0.009*C	LZ-110	0.000	0.000
HZ-100	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
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-110		0.535 + 0.003*Tr + 0.100*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
F-10100       0.473 + 0.075*C       0.524 + 0.006*Tr + 0.100*C         R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C			0.390 + 0.003*Tr + 0.100*C
R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C		TA TEN)	
F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-10100		0.524 + 0.006*Tr + 0.100*C
R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-10000 1.115 + 0.002*Tr + 0.027*C 1.271 + 0.005*Tr + 0.039*C F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
	R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
R-00010 1.117 - 0.007*Tr + 0.027*C 1.272 + 0.001*Tr + 0.039*C	F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
	R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

## **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

## 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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			1	1
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

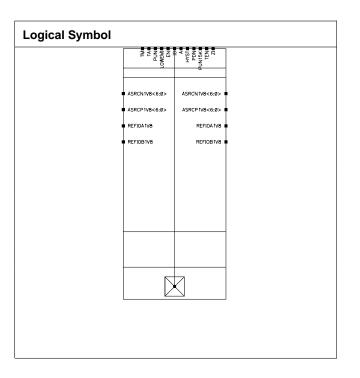
### **Physical Dimensions**

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	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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	
	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

## **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )	-	1		
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )	1	,		
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN	1)			
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C

Event	Value (as a function of	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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C	
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C	
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C	
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C	
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C	
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C	
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C	
Path IO-ZI (for pins HYST )			
F-1	0.007 + 0.138*C	0.009 + 0.188*C	
R-1	0.006 + 0.086*C	0.009 + 0.131*C	
F-0	0.007 + 0.137*C	0.009 + 0.188*C	
R-0	0.006 + 0.085*C	0.008 + 0.130*C	
Path TA-IO (for pins LOWEMI TEN TM	)		
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C	
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C	
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C	
R-001	1.116 + 0.027*C	1.270 + 0.039*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         0.357 + 0.007*Tr + 0.076*C         0.391 - 0.001*Tr + 0.100*C           ZH-11         1.315 - 0.004*Tr + 0.028*C         1.511 + 0.004*Tr + 0.039*C           ZL-11         0.486 + 0.003*Tr + 0.075*C         0.550 - 0.010*Tr + 0.100*C           Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-111         0.000         0.000           HZ-001         0.000         0.000           LZ-011         0.000         0.000           LZ-001         0.000         0.000           LZ-001         0.000         0.000           LZ-100         0.000         0.000           LZ-101         0.020*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-101         0.356 + 0.076*C         0.339 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0	LZ-11	0.000	0.000
ZH-11	ZH-01	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
Table   Tabl	ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-100         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         The total color of the	ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
HZ-011	ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-101         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.275 + 0.039*C         0.390 + 0.003*Tr + 0.100*C           ZH-100         0.359 - 0.003*Tr + 0.076*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-00110         0.4771 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.100*C <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.003*Tr + 0.008*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         1.305 + 0.028*C         1.493 + 0.015*Tr + 0.009*C           F-00110         0.471 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.009*Tr + 0.009*C           F-10000         0.340 + 0.003*Tr + 0.076*C         0.376 + 0.005*Tr + 0.009*C           F-10000         0.340 + 0.002*Tr + 0.027*C         1.271 + 0.005*Tr + 0.009*C	LZ-110	0.000	0.000
HZ-100	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
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110		0.535 + 0.003*Tr + 0.100*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
F-10100       0.473 + 0.075*C       0.524 + 0.006*Tr + 0.100*C         R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	Path TM-IO (for pins A EN LOWEMI 7	TA TEN)	
F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-10000 1.115 + 0.002*Tr + 0.027*C 1.271 + 0.005*Tr + 0.039*C F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
	R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
R-00010 1.117 - 0.007*Tr + 0.027*C 1.272 + 0.001*Tr + 0.039*C	F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
	R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

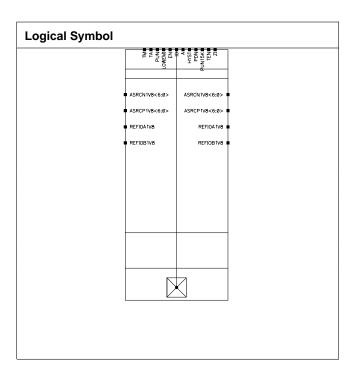
#### **Physical Dimensions**

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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN )		1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C
Path IO-ZI (for pins HYST )	'	
F-1	0.007 + 0.138*C	0.009 + 0.188*C
R-1	0.006 + 0.086*C	0.009 + 0.131*C
F-0	0.007 + 0.137*C	0.009 + 0.188*C
R-0	0.006 + 0.085*C	0.008 + 0.130*C
Path TA-IO (for pins LOWEMI TEN T	M )	,
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA 1		•
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8	1	1	1	1
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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	-	-	-	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.	0.0377	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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN	1)	1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



0.420 + 0.270*Tr	0.590 + 0.447*Tr
1.032 + 0.180*Tr	1.225 + 0.387*Tr
0.397 + 0.050*Tr	0.544 + 0.269*Tr
1.053 + 0.262*Tr	1.271 + 0.420*Tr
0.420 + 0.271*Tr	0.590 + 0.446*Tr
5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
EN)	
2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C
	1.032 + 0.180*Tr  0.397 + 0.050*Tr  1.053 + 0.262*Tr  0.420 + 0.271*Tr  5.067 + 0.202*Tr + 0.055*C  2.694 + 0.220*Tr + 0.096*C  5.080 - 0.029*Tr + 0.095*C  2.716 - 0.022*Tr + 0.096*C  4.315 + 0.211*Tr + 0.051*C  2.088 + 0.207*Tr + 0.094*C  4.331 - 0.028*Tr + 0.051*C  2.111 - 0.025*Tr + 0.094*C <b>EN)</b> 2.626 - 0.020*Tr + 0.096*C  5.052 + 0.264*Tr + 0.055*C  2.611 + 0.218*Tr + 0.096*C  5.029 + 0.022*Tr + 0.096*C  4.313 + 0.261*Tr + 0.094*C  4.313 + 0.261*Tr + 0.094*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	1)			
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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         0.357 + 0.007*Tr + 0.076*C         0.391 - 0.001*Tr + 0.100*C           ZH-11         1.315 - 0.004*Tr + 0.028*C         1.511 + 0.004*Tr + 0.039*C           ZL-11         0.486 + 0.003*Tr + 0.075*C         0.550 - 0.010*Tr + 0.100*C           Path TM-IO (for pins EN LOWEMI TEN)           HZ-011         0.000         0.000           LZ-011         0.000         0.000           LZ-011         0.000         0.000           HZ-110         0.000         0.000           LZ-111         0.000         0.000           HZ-001         0.000         0.000           LZ-011         0.000         0.000           LZ-001         0.000         0.000           LZ-001         0.000         0.000           LZ-100         0.000         0.000           LZ-101         0.020*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-101         0.356 + 0.076*C         0.339 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0	LZ-11	0.000	0.000
ZH-11	ZH-01	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
Table   Tabl	ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-100         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)         The total color of the	ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
HZ-011	ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-101         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.100*C           ZH-100         1.121 - 0.002*Tr + 0.027*C         1.273 + 0.008*Tr + 0.100*C           ZH-100         1.275 + 0.039*C         0.390 + 0.003*Tr + 0.100*C           ZH-100         0.359 - 0.003*Tr + 0.076*C         0.390 + 0.003*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN )         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-00110         0.4771 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.100*C <td>Path TM-IO (for pins EN LOWEMI TE</td> <td>N)</td> <td></td>	Path TM-IO (for pins EN LOWEMI TE	N)	
HZ-110	HZ-011	0.000	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	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         1.315 - 0.012*Tr + 0.028*C         1.509 + 0.002*Tr + 0.039*C           ZL-011         0.487 + 0.004*Tr + 0.075*C         0.536 + 0.003*Tr + 0.100*C           ZH-110         1.314 - 0.005*Tr + 0.028*C         1.502 + 0.006*Tr + 0.039*C           ZL-110         0.487 + 0.075*C         0.535 + 0.003*Tr + 0.100*C           ZH-001         1.122 - 0.004*Tr + 0.027*C         1.275 + 0.039*C           ZL-001         0.356 + 0.076*C         0.390 + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.002*Tr + 0.003*Tr + 0.008*Tr + 0.100*C           Path TM-IO (for pins A EN LOWEMI TA TEN)           F-10100         0.473 + 0.075*C         0.524 + 0.006*Tr + 0.100*C           R-10100         1.305 + 0.028*C         1.493 + 0.015*Tr + 0.009*C           F-00110         0.471 + 0.006*Tr + 0.075*C         0.525 + 0.008*Tr + 0.009*Tr + 0.009*C           F-10000         0.340 + 0.003*Tr + 0.076*C         0.376 + 0.005*Tr + 0.009*C           F-10000         0.340 + 0.002*Tr + 0.027*C         1.271 + 0.005*Tr + 0.009*C	LZ-110	0.000	0.000
HZ-100	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
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	LZ-100	0.000	0.000
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-011	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-110		0.535 + 0.003*Tr + 0.100*C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
F-10100       0.473 + 0.075*C       0.524 + 0.006*Tr + 0.100*C         R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
R-10100       1.305 + 0.028*C       1.493 + 0.015*Tr + 0.039*C         F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	Path TM-IO (for pins A EN LOWEMI 7	TA TEN)	
F-00110       0.471 + 0.006*Tr + 0.075*C       0.525 + 0.008*Tr + 0.100*C         R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-00110       1.306 - 0.003*Tr + 0.028*C       1.495 + 0.009*Tr + 0.039*C         F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-10000       0.340 + 0.003*Tr + 0.076*C       0.376 + 0.005*Tr + 0.100*C         R-10000       1.115 + 0.002*Tr + 0.027*C       1.271 + 0.005*Tr + 0.039*C         F-00010       0.340 + 0.002*Tr + 0.076*C       0.380 - 0.005*Tr + 0.100*C	F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-10000 1.115 + 0.002*Tr + 0.027*C 1.271 + 0.005*Tr + 0.039*C F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-00010 0.340 + 0.002*Tr + 0.076*C 0.380 - 0.005*Tr + 0.100*C	F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
	R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
R-00010 1.117 - 0.007*Tr + 0.027*C 1.272 + 0.001*Tr + 0.039*C	F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
	R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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.

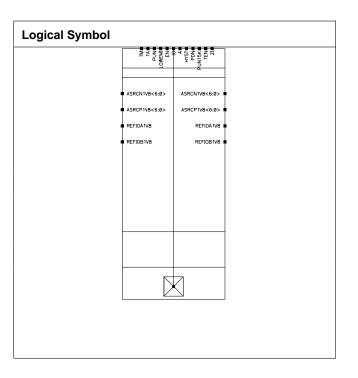
#### **Physical Dimensions**

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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN )		1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



LZ-110	0.420 + 0.270*Tr	0.590 + 0.447*Tr
HZ-001	1.032 + 0.180*Tr	1.225 + 0.387*Tr
LZ-001	0.397 + 0.050*Tr	0.544 + 0.269*Tr
HZ-100	1.053 + 0.262*Tr	1.271 + 0.420*Tr
LZ-100	0.420 + 0.271*Tr	0.590 + 0.446*Tr
ZH-011	5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
ZL-011	2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
ZH-110	5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
ZL-110	2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
ZH-001	4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
ZL-001	2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
ZH-100	4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
ZL-100	2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
Path TM-IO (for pins A EN LOWEMI TA	TEN)	
F-10100	2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
R-10100	5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
F-00110	2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
R-00110	5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
F-10000	2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
R-10000	4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
F-00010	2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
R-00010	4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )	'			
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN T	M )	,		
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI TA T		
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			1	1
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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(pF)  best 1.10 125 worst 0.90 -40	
r arameter		



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.	1.4990	1.4233
IO Max Load	201.499	201.423
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	
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **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	2.614 + 0.201*Tr + 0.096*C	4.425 + 0.393*Tr + 0.129*C		
R-010	5.031 + 0.014*Tr + 0.055*C	8.380 + 0.242*Tr + 0.071*C		
F-000	2.041 + 0.194*Tr + 0.094*C	3.387 + 0.378*Tr + 0.127*C		
R-000	4.291 + 0.014*Tr + 0.051*C	7.091 + 0.243*Tr + 0.067*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.032 + 0.143*Tr	1.234 + 0.377*Tr		
LZ-10	0.624 + 0.132*Tr	0.933 + 0.377*Tr		
HZ-00	1.030 + 0.144*Tr	1.234 + 0.375*Tr		
LZ-00	0.624 + 0.134*Tr	0.933 + 0.372*Tr		
ZH-10	5.068 + 0.177*Tr + 0.055*C	8.475 + 0.484*Tr + 0.071*C		
ZL-10	2.699 + 0.159*Tr + 0.096*C	4.607 + 0.475*Tr + 0.129*C		
ZH-00	4.320 + 0.171*Tr + 0.051*C	7.172 + 0.484*Tr + 0.067*C		
ZL-00	2.092 + 0.165*Tr + 0.094*C	3.516 + 0.483*Tr + 0.127*C		
Path IO-ZI (for pins HYST )				
F-1	0.579 + 0.270*Tr + 0.141*C	0.743 + 0.527*Tr + 0.401*C		
R-1	0.553 + 0.209*Tr + 0.115*C	0.685 + 0.444*Tr + 0.165*C		
F-0	0.529 + 0.110*Tr + 0.176*C	0.851 + 0.257*Tr + 0.242*C		
R-0	0.521 + 0.035*Tr + 0.124*C	0.810 + 0.156*Tr + 0.168*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.619 + 0.191*Tr + 0.096*C	4.425 + 0.385*Tr + 0.129*C		
R-101	5.030 + 0.011*Tr + 0.055*C	8.379 + 0.245*Tr + 0.071*C		
F-001	2.041 + 0.190*Tr + 0.094*C	3.384 + 0.390*Tr + 0.127*C		
R-001	4.291 + 0.012*Tr + 0.051*C	7.089 + 0.246*Tr + 0.067*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.032 + 0.141*Tr	1.235 + 0.371*Tr		
LZ-01	0.623 + 0.137*Tr	0.931 + 0.377*Tr		
HZ-11	1.030 + 0.149*Tr	1.232 + 0.378*Tr		
LZ-11	0.623 + 0.137*Tr	0.932 + 0.377*Tr		
ZH-01	4.322 + 0.170*Tr + 0.051*C	7.174 + 0.476*Tr + 0.067*C		
ZL-01	2.092 + 0.161*Tr + 0.094*C	3.515 + 0.475*Tr + 0.127*C		
ZH-11	5.068 + 0.173*Tr + 0.055*C	8.476 + 0.483*Tr + 0.071*C		
ZL-11	2.701 + 0.163*Tr + 0.096*C	4.611 + 0.463*Tr + 0.129*C		
Path TM-IO (for pins EN LOWEMI TEN )		1		
HZ-011	1.029 + 0.188*Tr	1.223 + 0.386*Tr		
LZ-011	0.396 + 0.046*Tr	0.544 + 0.264*Tr		
HZ-110	1.051 + 0.265*Tr	1.270 + 0.421*Tr		



0.420 + 0.270*Tr	0.590 + 0.447*Tr
1.032 + 0.180*Tr	1.225 + 0.387*Tr
0.397 + 0.050*Tr	0.544 + 0.269*Tr
1.053 + 0.262*Tr	1.271 + 0.420*Tr
0.420 + 0.271*Tr	0.590 + 0.446*Tr
5.067 + 0.202*Tr + 0.055*C	8.463 + 0.489*Tr + 0.071*C
2.694 + 0.220*Tr + 0.096*C	4.599 + 0.469*Tr + 0.129*C
5.080 - 0.029*Tr + 0.055*C	8.491 + 0.214*Tr + 0.071*C
2.716 - 0.022*Tr + 0.096*C	4.629 + 0.229*Tr + 0.129*C
4.315 + 0.211*Tr + 0.051*C	7.160 + 0.485*Tr + 0.067*C
2.088 + 0.207*Tr + 0.094*C	3.506 + 0.475*Tr + 0.127*C
4.331 - 0.028*Tr + 0.051*C	7.185 + 0.223*Tr + 0.067*C
2.111 - 0.025*Tr + 0.094*C	3.537 + 0.232*Tr + 0.127*C
EN )	
2.626 - 0.020*Tr + 0.096*C	4.432 + 0.222*Tr + 0.129*C
5.052 + 0.264*Tr + 0.055*C	8.415 + 0.438*Tr + 0.071*C
2.611 + 0.218*Tr + 0.096*C	4.414 + 0.363*Tr + 0.129*C
5.029 + 0.022*Tr + 0.055*C	8.372 + 0.225*Tr + 0.071*C
2.050 - 0.021*Tr + 0.094*C	3.392 + 0.227*Tr + 0.127*C
4.313 + 0.261*Tr + 0.051*C	7.125 + 0.442*Tr + 0.067*C
2.034 + 0.219*Tr + 0.094*C	3.372 + 0.363*Tr + 0.127*C
4.290 + 0.023*Tr + 0.051*C	7.083 + 0.229*Tr + 0.067*C
	1.032 + 0.180*Tr  0.397 + 0.050*Tr  1.053 + 0.262*Tr  0.420 + 0.271*Tr  5.067 + 0.202*Tr + 0.055*C  2.694 + 0.220*Tr + 0.096*C  5.080 - 0.029*Tr + 0.095*C  2.716 - 0.022*Tr + 0.096*C  4.315 + 0.211*Tr + 0.051*C  2.088 + 0.207*Tr + 0.094*C  4.331 - 0.028*Tr + 0.051*C  2.111 - 0.025*Tr + 0.094*C <b>EN)</b> 2.626 - 0.020*Tr + 0.096*C  5.052 + 0.264*Tr + 0.055*C  2.611 + 0.218*Tr + 0.096*C  5.029 + 0.022*Tr + 0.096*C  4.313 + 0.261*Tr + 0.094*C  4.313 + 0.261*Tr + 0.094*C

## **Transition Time**

Frant	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	0.471 + 0.006*Tr + 0.075*C	0.529 + 0.100*C		
R-010	1.304 + 0.028*C	1.494 + 0.011*Tr + 0.039*C		
F-000	0.339 + 0.003*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-000	1.116 + 0.003*Tr + 0.027*C	1.268 + 0.007*Tr + 0.039*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	1.312 + 0.028*C	1.508 + 0.006*Tr + 0.039*C		
ZL-10	0.487 - 0.005*Tr + 0.075*C	0.548 - 0.007*Tr + 0.100*C		
ZH-00	1.121 - 0.003*Tr + 0.027*C	1.274 + 0.004*Tr + 0.039*C		
ZL-00	0.356 + 0.009*Tr + 0.076*C	0.390 - 0.001*Tr + 0.100*C		
Path IO-ZI (for pins HYST )				
F-1	0.007 + 0.138*C	0.009 + 0.188*C		
R-1	0.006 + 0.086*C	0.009 + 0.131*C		
F-0	0.007 + 0.137*C	0.009 + 0.188*C		
R-0	0.006 + 0.085*C	0.008 + 0.130*C		
Path TA-IO (for pins LOWEMI TEN TM	<b>(1)</b>			
F-101	0.474 - 0.009*Tr + 0.075*C	0.526 + 0.002*Tr + 0.100*C		
R-101	1.306 - 0.002*Tr + 0.028*C	1.493 + 0.009*Tr + 0.039*C		
F-001	0.341 - 0.001*Tr + 0.076*C	0.381 - 0.004*Tr + 0.100*C		
R-001	1.116 + 0.027*C	1.270 + 0.039*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	1.122 + 0.027*C	1.279 - 0.003*Tr + 0.039*C
ZL-01	0.357 + 0.007*Tr + 0.076*C	0.391 - 0.001*Tr + 0.100*C
ZH-11	1.315 - 0.004*Tr + 0.028*C	1.511 + 0.004*Tr + 0.039*C
ZL-11	0.486 + 0.003*Tr + 0.075*C	0.550 - 0.010*Tr + 0.100*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	1.315 - 0.012*Tr + 0.028*C	1.509 + 0.002*Tr + 0.039*C
ZL-011	0.487 + 0.004*Tr + 0.075*C	0.536 + 0.003*Tr + 0.100*C
ZH-110	1.314 - 0.005*Tr + 0.028*C	1.502 + 0.006*Tr + 0.039*C
ZL-110	0.487 + 0.075*C	0.535 + 0.003*Tr + 0.100*C
ZH-001	1.122 - 0.004*Tr + 0.027*C	1.275 + 0.039*C
ZL-001	0.356 + 0.076*C	0.390 + 0.002*Tr + 0.100*C
ZH-100	1.121 - 0.002*Tr + 0.027*C	1.273 + 0.008*Tr + 0.039*C
ZL-100	0.359 - 0.003*Tr + 0.076*C	0.390 + 0.003*Tr + 0.100*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.473 + 0.075*C	0.524 + 0.006*Tr + 0.100*C
R-10100	1.305 + 0.028*C	1.493 + 0.015*Tr + 0.039*C
F-00110	0.471 + 0.006*Tr + 0.075*C	0.525 + 0.008*Tr + 0.100*C
R-00110	1.306 - 0.003*Tr + 0.028*C	1.495 + 0.009*Tr + 0.039*C
F-10000	0.340 + 0.003*Tr + 0.076*C	0.376 + 0.005*Tr + 0.100*C
R-10000	1.115 + 0.002*Tr + 0.027*C	1.271 + 0.005*Tr + 0.039*C
F-00010	0.340 + 0.002*Tr + 0.076*C	0.380 - 0.005*Tr + 0.100*C
R-00010	1.117 - 0.007*Tr + 0.027*C	1.272 + 0.001*Tr + 0.039*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.683e-03
worst 0.90 -40	6.623e-07	2.049e-07

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	0.505 + 0.312*Tr	0.633 + 0.939*Tr	0.261	0.338 + 0.007*Tr
ZI toggling	0.273	0.275 + 0.003*Tr	0.152	0.151 + 0.001*Tr
For vdde1v8			•	
IO toggling/Output stable	4.279 - 0.002*Tr	4.966 + 0.008*Tr	2.451	2.806 - 0.054*Tr
ZI toggling	0.191 + 0.085*Tr	0.262 + 0.163*Tr	0.101	0.136 + 0.024*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(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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	Pin Parameter Value		alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN)		1		
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI TA TI	EN)	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI T		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C
	I	1

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

Din Cycle		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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr	
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr	
For vdde1v8	1	1		1	
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr	
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

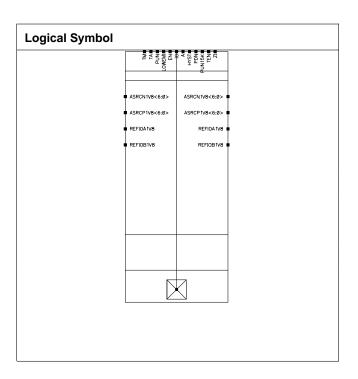
#### **Physical Dimensions**

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	-	-	-	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)	
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.	1.5702	1.4929
IO Max Load	201.570	201.493
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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM	)	1		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )		1		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN	1)			
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI 7	TA TEN)	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C
F-0	0.005 + 0.136*C	0.006 + 0.188*C
R-0	0.005 + 0.085*C	0.006 + 0.127*C
Path TA-IO (for pins LOWEMI TEN T	M)	
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI TA TE	N)	
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

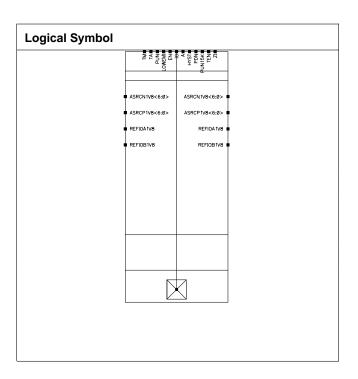
#### **Physical Dimensions**

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	-	-	-	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)  best 1.10 125 worst 0.90 -40	
r arameter		



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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN)		1		
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



0.426 + 0.269*Tr	0.594 + 0.448*Tr
1.157 + 0.195*Tr	1.340 + 0.386*Tr
0.402 + 0.051*Tr	0.548 + 0.273*Tr
1.181 + 0.272*Tr	1.387 + 0.421*Tr
0.426 + 0.269*Tr	0.595 + 0.447*Tr
5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
N)	
2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C
	1.157 + 0.195*Tr  0.402 + 0.051*Tr  1.181 + 0.272*Tr  0.426 + 0.269*Tr  5.962 + 0.210*Tr + 0.055*C  2.874 + 0.204*Tr + 0.078*C  5.980 - 0.032*Tr + 0.078*C  4.051 + 0.214*Tr + 0.074*C  2.027 + 0.203*Tr + 0.073*C  4.066 - 0.027*Tr + 0.044*C  2.043 - 0.017*Tr + 0.074*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.024*Tr + 0.078*C  1.044 - 0.227*Tr + 0.078*C  1.045 - 0.023*Tr + 0.078*C  1.046 - 0.028*Tr + 0.078*C  1.046 - 0.028*Tr + 0.073*C  1.046 - 0.262*Tr + 0.044*C  1.046 - 0.262*Tr + 0.073*C

## **Transition Time**

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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	M )			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C			
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C			
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C			
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C			
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C			
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C			
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C			
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C			
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C			
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C			
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C			
Path TM-IO (for pins A EN LOWEMI TA TEN )					
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C			
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C			
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C			
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C			
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C			
R-10000	1.074 + 0.022*C	1.261 + 0.030*C			
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C			
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C			
11-00010	1.017 + 0.022 0	1.202 - 0.000 H + 0.000 C			

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8		1		
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

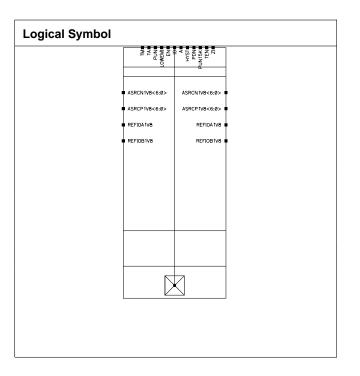
### **Physical Dimensions**

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	-	-	-	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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	Value (as a function of	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM )		I .		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )		T.		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN )	,			
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



0.426 + 0.269*Tr	0.594 + 0.448*Tr
1.157 + 0.195*Tr	1.340 + 0.386*Tr
0.402 + 0.051*Tr	0.548 + 0.273*Tr
1.181 + 0.272*Tr	1.387 + 0.421*Tr
0.426 + 0.269*Tr	0.595 + 0.447*Tr
5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
N)	
2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C
	1.157 + 0.195*Tr  0.402 + 0.051*Tr  1.181 + 0.272*Tr  0.426 + 0.269*Tr  5.962 + 0.210*Tr + 0.055*C  2.874 + 0.204*Tr + 0.078*C  5.980 - 0.032*Tr + 0.078*C  4.051 + 0.214*Tr + 0.074*C  2.027 + 0.203*Tr + 0.073*C  4.066 - 0.027*Tr + 0.044*C  2.043 - 0.017*Tr + 0.074*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.024*Tr + 0.078*C  1.044 - 0.227*Tr + 0.078*C  1.045 - 0.023*Tr + 0.078*C  1.046 - 0.028*Tr + 0.078*C  1.046 - 0.028*Tr + 0.073*C  1.046 - 0.262*Tr + 0.044*C  1.046 - 0.262*Tr + 0.073*C

### **Transition Time**

Frant	Event 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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C	
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C	
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C	
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C	
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C	
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C	
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C	
F-0	0.005 + 0.136*C	0.006 + 0.188*C	
R-0	0.005 + 0.085*C	0.006 + 0.127*C	
Path TA-IO (for pins LOWEMI TEN TM	<b>1</b> )		
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C	
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C	
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C	
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI TA 1		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr	
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr	
For vdde1v8	For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr	
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C
Path IO-ZI (for pins HYST )		
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C
Path TM-IO (for pins EN LOWEMI TEN)	)	1
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI TA TE	EN)	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI TA		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8	1	1		1
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

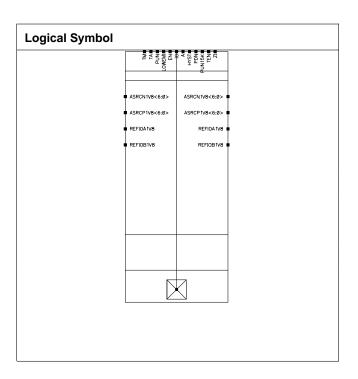
### **Physical Dimensions**

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.	1.5702	1.4929
IO Max Load	201.570	201.493
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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C
Path IO-ZI (for pins HYST )		
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM	)	1
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C
Path TEN-IO (for pins LOWEMI TM )		1
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C
Path TM-IO (for pins EN LOWEMI TEN	1)	
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr



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LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TM	)			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI T	A TEN)	
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

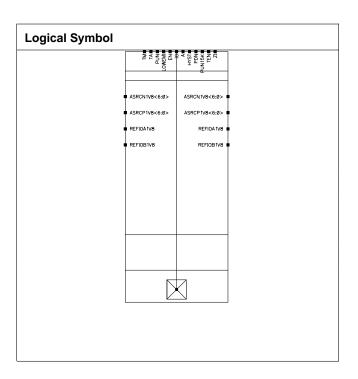
### **Physical Dimensions**

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	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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C
Path IO-ZI (for pins HYST )		
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C
Path TM-IO (for pins EN LOWEMI TEN)	)	1
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr



0.426 + 0.269*Tr	0.594 + 0.448*Tr		
1.157 + 0.195*Tr	1.340 + 0.386*Tr		
0.402 + 0.051*Tr	0.548 + 0.273*Tr		
1.181 + 0.272*Tr	1.387 + 0.421*Tr		
0.426 + 0.269*Tr	0.595 + 0.447*Tr		
5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C		
2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C		
5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C		
2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C		
4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C		
2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C		
4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C		
2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C		
Path TM-IO (for pins A EN LOWEMI TA TEN )			
2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C		
5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C		
2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C		
5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C		
2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C		
4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C		
2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C		
4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C		
	1.157 + 0.195*Tr  0.402 + 0.051*Tr  1.181 + 0.272*Tr  0.426 + 0.269*Tr  5.962 + 0.210*Tr + 0.055*C  2.874 + 0.204*Tr + 0.078*C  5.980 - 0.032*Tr + 0.078*C  4.051 + 0.214*Tr + 0.074*C  2.027 + 0.203*Tr + 0.073*C  4.066 - 0.027*Tr + 0.044*C  2.043 - 0.017*Tr + 0.074*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.024*Tr + 0.078*C  1.044 - 0.227*Tr + 0.078*C  1.045 - 0.023*Tr + 0.078*C  1.046 - 0.028*Tr + 0.078*C  1.046 - 0.028*Tr + 0.073*C  1.046 - 0.262*Tr + 0.044*C  1.046 - 0.262*Tr + 0.073*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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C
F-0	0.005 + 0.136*C	0.006 + 0.188*C
R-0	0.005 + 0.085*C	0.006 + 0.127*C
Path TA-IO (for pins LOWEMI TEN TM	)	
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI T		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C
	I	1

### **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr	
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr	
For vdde1v8	1	1	1	1	
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr	
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

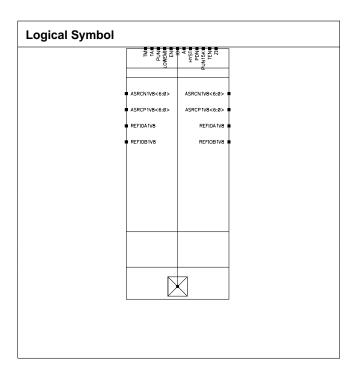
### **Physical Dimensions**

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.	1.5702	1.4929
IO Max Load	201.570	201.493
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		
	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	Value (as a function of	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM )		I .		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )		T.		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN )	,			
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C

### **Transition Time**

Frant	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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN TM	<b>1</b> )			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C
R-00110 F-10000 R-10000 F-00010	1.639 + 0.004*Tr + 0.024*C 0.384 - 0.003*Tr + 0.057*C 1.074 + 0.022*C 0.383 - 0.003*Tr + 0.057*C	1.940 + 0.001*Tr + 0.032*C 0.442 + 0.002*Tr + 0.075*C 1.261 + 0.030*C 0.443 - 0.005*Tr + 0.075*C

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr	
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr	
For vdde1v8	For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr	
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

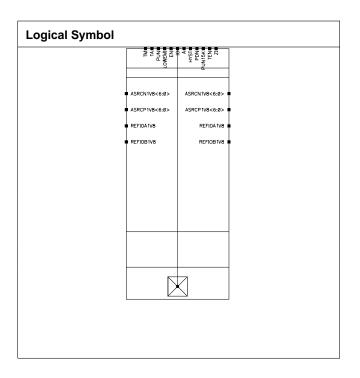
### **Physical Dimensions**

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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C
Path IO-ZI (for pins HYST )		
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C
Path TM-IO (for pins EN LOWEMI TEN)	)	1
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr	
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr	
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr	
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr	
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr	
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C	
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C	
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C	
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C	
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C	
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C	
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C	
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C	
Path TM-IO (for pins A EN LOWEMI TA TEN )			
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C	
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C	
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C	
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C	
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C	
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C	
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C	
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C	

### **Transition Time**

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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	М)			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI TA		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8	1	1		1
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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	-	-	-	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 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.	1.5702	1.4929
IO Max Load	201.570	201.493
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 best 1.10 worst 0.90		
	Parameter			
IO (Input)	Min Transition (ns)	0.375	0.375	
IO (Input)	Max Transition (ns)	12.0	12.0	
IO (Input)	Swing (V)	0.0 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN)		1		
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
Path TM-IO (for pins A EN LOWEMI	TA TEN )	
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C

### **Transition Time**

Event	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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN 1	ГМ )			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI	TA TEN)	
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

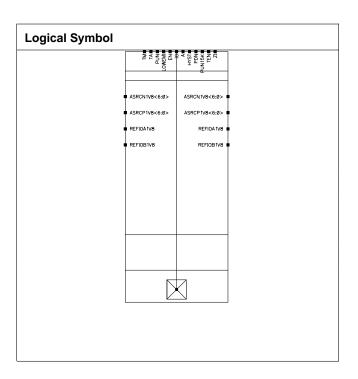
### **Physical Dimensions**

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	Value(pF)	
raiametei	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.	1.5702	1.4929
IO Max Load	201.570	201.493
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	alue
ГШ	Faiailletei	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 - 1.32	0.0 - 1.08



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C
Path EN-IO (for pins LOWEMI TM )		
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C
Path IO-ZI (for pins HYST )		
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C
Path TA-IO (for pins LOWEMI TEN TM)		
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C
Path TEN-IO (for pins LOWEMI TM )		
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C
Path TM-IO (for pins EN LOWEMI TEN)		1
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr



LZ-110	0.426 + 0.269*Tr	0.594 + 0.448*Tr		
HZ-001	1.157 + 0.195*Tr	1.340 + 0.386*Tr		
LZ-001	0.402 + 0.051*Tr	0.548 + 0.273*Tr		
HZ-100	1.181 + 0.272*Tr	1.387 + 0.421*Tr		
LZ-100	0.426 + 0.269*Tr	0.595 + 0.447*Tr		
ZH-011	5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C		
ZL-011	2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C		
ZH-110	5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C		
ZL-110	2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C		
ZH-001	4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C		
ZL-001	2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C		
ZH-100	4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C		
ZL-100	2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C		
Path TM-IO (for pins A EN LOWEMI TA	Path TM-IO (for pins A EN LOWEMI TA TEN )			
F-10100	2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C		
R-10100	5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C		
F-00110	2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C		
R-00110	5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C		
F-10000	2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C		
R-10000	4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C		
F-00010	2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C		
R-00010	4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C		

### **Transition Time**

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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C		
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C		
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C		
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C		
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C		
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C		
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C		
F-0	0.005 + 0.136*C	0.006 + 0.188*C		
R-0	0.005 + 0.085*C	0.006 + 0.127*C		
Path TA-IO (for pins LOWEMI TEN T	М)			
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C		
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C		
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C		
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI T		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C
	I	1

# Default Leakage Power

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr
For vdde1v8	1	1		1
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*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.

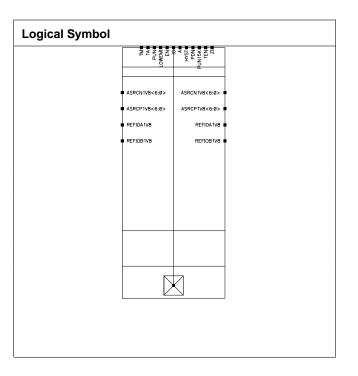
### **Physical Dimensions**

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)		
	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.	1.5702	1.4929
IO Max Load	201.570	201.493
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		
	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 - 1.32	0.0 - 1.08	



IO (Input)	Delay thres. rising (V)	0.66	0.54
IO (Input)	Delay thres. falling (V)	0.66	0.54
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 - 1.32	0.0 - 1.08
IO (Output)	Delay thres. rising (V)	0.66	0.54
IO (Output)	Delay thres. falling (V)	0.66	0.54
IO (Output)	Slope thres. low (V)	0.396	0.324
IO (Output)	Slope thres. high (V)	0.924	0.756

# **Propagation Delay**

Event	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	2.798 + 0.193*Tr + 0.078*C	4.875 + 0.395*Tr + 0.102*C		
R-010	5.922 + 0.015*Tr + 0.055*C	10.295 + 0.239*Tr + 0.069*C		
F-000	2.012 + 0.193*Tr + 0.073*C	3.351 + 0.379*Tr + 0.098*C		
R-000	4.040 + 0.008*Tr + 0.043*C	6.753 + 0.244*Tr + 0.056*C		
Path EN-IO (for pins LOWEMI TM )				
HZ-10	1.163 + 0.137*Tr	1.350 + 0.374*Tr		
LZ-10	0.628 + 0.135*Tr	0.936 + 0.373*Tr		
HZ-00	1.166 + 0.128*Tr	1.351 + 0.372*Tr		
LZ-00	0.627 + 0.137*Tr	0.935 + 0.375*Tr		
ZH-10	5.968 + 0.173*Tr + 0.055*C	10.397 + 0.489*Tr + 0.069*C		
ZL-10	2.873 + 0.163*Tr + 0.078*C	5.067 + 0.450*Tr + 0.102*C		
ZH-00	4.058 + 0.167*Tr + 0.044*C	6.812 + 0.480*Tr + 0.056*C		
ZL-00	2.026 + 0.163*Tr + 0.073*C	3.464 + 0.470*Tr + 0.098*C		
Path IO-ZI (for pins HYST )				
F-1	0.572 + 0.270*Tr + 0.154*C	0.745 + 0.523*Tr + 0.301*C		
R-1	0.553 + 0.207*Tr + 0.107*C	0.692 + 0.442*Tr + 0.075*C		
F-0	0.522 + 0.111*Tr + 0.182*C	0.845 + 0.256*Tr + 0.248*C		
R-0	0.516 + 0.034*Tr + 0.132*C	0.806 + 0.155*Tr + 0.177*C		
Path TA-IO (for pins LOWEMI TEN TM)				
F-101	2.801 + 0.186*Tr + 0.078*C	4.880 + 0.388*Tr + 0.102*C		
R-101	5.921 + 0.022*Tr + 0.055*C	10.292 + 0.240*Tr + 0.069*C		
F-001	2.006 + 0.207*Tr + 0.073*C	3.349 + 0.388*Tr + 0.098*C		
R-001	4.037 + 0.014*Tr + 0.044*C	6.751 + 0.252*Tr + 0.056*C		
Path TEN-IO (for pins LOWEMI TM )				
HZ-01	1.158 + 0.150*Tr	1.356 + 0.366*Tr		
LZ-01	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
HZ-11	1.160 + 0.138*Tr	1.349 + 0.377*Tr		
LZ-11	0.628 + 0.136*Tr	0.935 + 0.375*Tr		
ZH-01	4.058 + 0.168*Tr + 0.044*C	6.810 + 0.483*Tr + 0.056*C		
ZL-01	2.028 + 0.164*Tr + 0.073*C	3.461 + 0.484*Tr + 0.098*C		
ZH-11	5.968 + 0.170*Tr + 0.055*C	10.395 + 0.484*Tr + 0.069*C		
ZL-11	2.878 + 0.155*Tr + 0.078*C	5.067 + 0.453*Tr + 0.102*C		
Path TM-IO (for pins EN LOWEMI TEN)		1		
HZ-011	1.155 + 0.194*Tr	1.341 + 0.389*Tr		
LZ-011	0.402 + 0.047*Tr	0.548 + 0.269*Tr		
HZ-110	1.182 + 0.271*Tr	1.389 + 0.423*Tr		



0.426 + 0.269*Tr	0.594 + 0.448*Tr
1.157 + 0.195*Tr	1.340 + 0.386*Tr
0.402 + 0.051*Tr	0.548 + 0.273*Tr
1.181 + 0.272*Tr	1.387 + 0.421*Tr
0.426 + 0.269*Tr	0.595 + 0.447*Tr
5.962 + 0.210*Tr + 0.055*C	10.384 + 0.489*Tr + 0.069*C
2.874 + 0.204*Tr + 0.078*C	5.055 + 0.471*Tr + 0.102*C
5.980 - 0.032*Tr + 0.055*C	10.415 + 0.216*Tr + 0.069*C
2.892 - 0.020*Tr + 0.078*C	5.085 + 0.239*Tr + 0.102*C
4.051 + 0.214*Tr + 0.044*C	6.798 + 0.487*Tr + 0.056*C
2.027 + 0.203*Tr + 0.073*C	3.455 + 0.485*Tr + 0.098*C
4.066 - 0.027*Tr + 0.044*C	6.826 + 0.222*Tr + 0.056*C
2.043 - 0.017*Tr + 0.073*C	3.485 + 0.242*Tr + 0.098*C
N)	
2.809 - 0.024*Tr + 0.078*C	4.884 + 0.238*Tr + 0.102*C
5.943 + 0.273*Tr + 0.055*C	10.328 + 0.441*Tr + 0.069*C
2.787 + 0.227*Tr + 0.078*C	4.861 + 0.377*Tr + 0.102*C
5.923 + 0.023*Tr + 0.055*C	10.287 + 0.218*Tr + 0.069*C
2.023 - 0.028*Tr + 0.073*C	3.359 + 0.221*Tr + 0.098*C
4.060 + 0.262*Tr + 0.044*C	6.788 + 0.440*Tr + 0.056*C
2.008 + 0.212*Tr + 0.073*C	3.337 + 0.363*Tr + 0.098*C
4.037 + 0.025*Tr + 0.043*C	6.745 + 0.229*Tr + 0.056*C
	1.157 + 0.195*Tr  0.402 + 0.051*Tr  1.181 + 0.272*Tr  0.426 + 0.269*Tr  5.962 + 0.210*Tr + 0.055*C  2.874 + 0.204*Tr + 0.078*C  5.980 - 0.032*Tr + 0.078*C  4.051 + 0.214*Tr + 0.074*C  2.027 + 0.203*Tr + 0.073*C  4.066 - 0.027*Tr + 0.044*C  2.043 - 0.017*Tr + 0.074*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.017*Tr + 0.078*C  1.043 - 0.024*Tr + 0.078*C  1.044 - 0.227*Tr + 0.078*C  1.045 - 0.023*Tr + 0.078*C  1.046 - 0.028*Tr + 0.078*C  1.046 - 0.028*Tr + 0.073*C  1.046 - 0.262*Tr + 0.044*C  1.046 - 0.262*Tr + 0.073*C

### **Transition Time**

Frant	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	0.618 - 0.008*Tr + 0.056*C	0.706 + 0.074*C
R-010	1.638 + 0.004*Tr + 0.024*C	1.947 - 0.002*Tr + 0.032*C
F-000	0.383 - 0.002*Tr + 0.057*C	0.444 - 0.004*Tr + 0.075*C
R-000	1.075 - 0.007*Tr + 0.022*C	1.261 + 0.030*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	1.649 + 0.005*Tr + 0.024*C	1.947 - 0.006*Tr + 0.032*C
ZL-10	0.639 - 0.005*Tr + 0.056*C	0.725 + 0.074*C
ZH-00	1.084 - 0.012*Tr + 0.022*C	1.269 + 0.030*C
ZL-00	0.412 + 0.057*C	0.456 - 0.002*Tr + 0.075*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 + 0.127*C
F-0	0.005 + 0.136*C	0.006 + 0.188*C
R-0	0.005 + 0.085*C	0.006 + 0.127*C
Path TA-IO (for pins LOWEMI TEN TM	<b>1</b> )	
F-101	0.615 - 0.005*Tr + 0.056*C	0.706 - 0.001*Tr + 0.074*C
R-101	1.639 + 0.002*Tr + 0.024*C	1.940 + 0.005*Tr + 0.032*C
F-001	0.380 + 0.008*Tr + 0.057*C	0.449 - 0.011*Tr + 0.075*C
R-001	1.074 + 0.022*C	1.259 + 0.007*Tr + 0.030*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	1.083 - 0.005*Tr + 0.022*C	1.268 + 0.006*Tr + 0.030*C
ZL-01	0.414 - 0.006*Tr + 0.057*C	0.456 - 0.003*Tr + 0.075*C
ZH-11	1.649 + 0.002*Tr + 0.024*C	1.960 - 0.003*Tr + 0.032*C
ZL-11	0.639 - 0.003*Tr + 0.056*C	0.729 - 0.001*Tr + 0.074*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	1.649 + 0.024*C	1.946 + 0.017*Tr + 0.032*C
ZL-011	0.637 + 0.007*Tr + 0.056*C	0.727 - 0.004*Tr + 0.074*C
ZH-110	1.653 - 0.011*Tr + 0.024*C	1.947 + 0.005*Tr + 0.032*C
ZL-110	0.638 + 0.056*C	0.720 + 0.015*Tr + 0.074*C
ZH-001	1.083 - 0.004*Tr + 0.022*C	1.268 - 0.002*Tr + 0.030*C
ZL-001	0.413 - 0.003*Tr + 0.057*C	0.460 - 0.007*Tr + 0.075*C
ZH-100	1.083 - 0.003*Tr + 0.022*C	1.270 - 0.005*Tr + 0.030*C
ZL-100	0.411 + 0.002*Tr + 0.057*C	0.453 + 0.075*C
Path TM-IO (for pins A EN LOWEMI TA		
F-10100	0.615 + 0.003*Tr + 0.056*C	0.706 + 0.074*C
R-10100	1.638 + 0.003*Tr + 0.024*C	1.937 + 0.009*Tr + 0.032*C
F-00110	0.614 + 0.056*C	0.707 - 0.001*Tr + 0.074*C
R-00110	1.639 + 0.004*Tr + 0.024*C	1.940 + 0.001*Tr + 0.032*C
F-10000	0.384 - 0.003*Tr + 0.057*C	0.442 + 0.002*Tr + 0.075*C
R-10000	1.074 + 0.022*C	1.261 + 0.030*C
F-00010	0.383 - 0.003*Tr + 0.057*C	0.443 - 0.005*Tr + 0.075*C
R-00010	1.074 + 0.022*C	1.262 - 0.005*Tr + 0.030*C

# **Default Leakage Power**

Default Leakage Power (mW)	vdd	vdde1v8
best 1.10 125	3.138e-03	1.851e-03
worst 0.90 -40	6.622e-07	2.074e-07

# 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	0.486 + 0.313*Tr	0.612 + 0.940*Tr	0.245 + 0.007*Tr	0.322 + 0.008*Tr	
ZI toggling	0.254	0.255 + 0.003*Tr	0.137	0.136 + 0.001*Tr	
For vdde1v8	For vdde1v8				
IO toggling/Output stable	4.615 - 0.004*Tr	5.555 - 0.010*Tr	2.628 + 0.022*Tr	2.986 + 0.052*Tr	
ZI toggling	0.191 + 0.085*Tr	0.265 + 0.161*Tr	0.101	0.135 + 0.024*Tr	





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