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cadence

Cadence Design Systems

CDS_FF_MPT Design Rule Manual

Finfet Process with Multi Patterning for 1X Metals

4 1X Metals, 2 2X M2, 1 4X Metal, 1 Cap Metal, 1 Top Metal

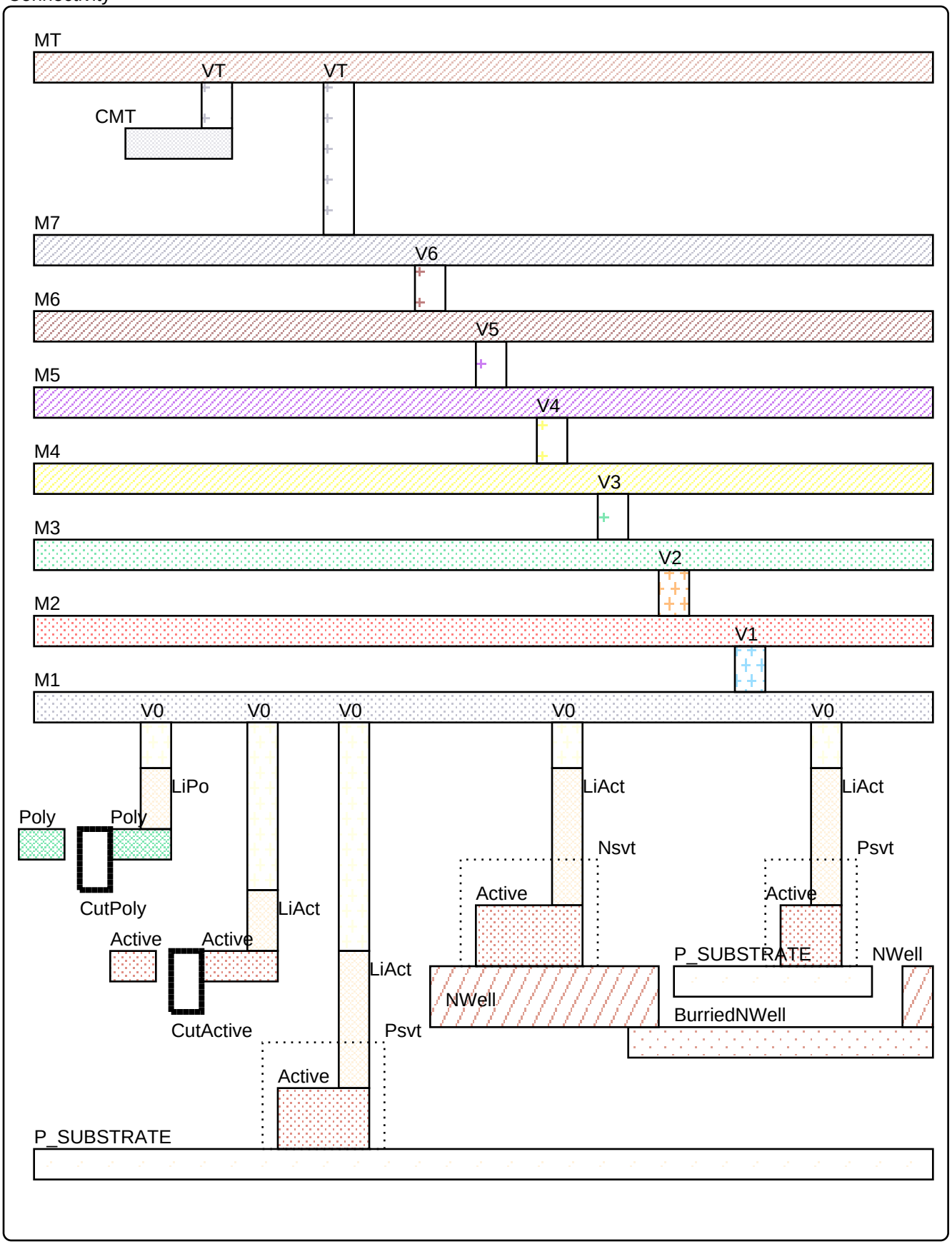
CDS_FF_MPT Process Revision List

DRC Revision History

0.1	04/07/16	Initial Design Rule Manual
0.2	05/02/16	Changed LiPo overlap of V0 values.
	05/04/16	Removed M4 coloring. Added non colored M4 Page
	05/06/16	Added coloring for V1-V3
	05/06/16	Added CutActive and CutPoly DRM sections
	07/12/16	Changed LiPo to Active spacing values.
	07/14/16	Added Cut Metal 1-3 with seperate layers for Grey, Mack1, Mask2
	07/22/16	Added MOS CDF to control purpose of dummy poly shapes
	07/25/16	Updated standard vias defintions to allow proper via stacking.
	07/28/16	Updated dummy poly enclosure of active in pcells
0.3	10/04/16	Changed LiPo space to V0 from .036 to .032
0.4	04/02/18	Added custom vias for FEOL connections
		Added WSP example library
		Added QRC database
		Added QRC ICT files and EM ICT file
		Updated cph.lam file for chaining and folding
		Updated PVS DRC and LVS files for parasitic extraction

CDS_FF_MPT Process Cross Section

Connectivity



CDS_FF_MPT Process Rules

BURIEDNWELL RULES

Data Table: NBL

RuleName	Description	Value
NBL.W.1	Minimum Nburied Width	0.8
NBL.SP.1	Minimum Nburied to Nburied spacing	2.0
NBL.SE.1	Minimum Nburied to non-related Nwell spacing	2.2
NBL.SE.2	Minimum Nburied to Oxide spacing	1.2

NWELL RULES

Data Table: NWELL

RuleName	Description	Value
NW.W.1	Minimum Nwell Width	0.146
NW.SP.1	Minimum Nwell spacing	0.162
NW.SE.1	Minimum Nwell spacing to Active Area	0.16
NW.SE.2	Minimum Nwell spacing to 1.8V Active Area	0.24
NW.E.1	Minimum Nwell enclosure of Active Area	0.021
NW.E.2	Minimum Nwell enclosure of 1.8V Active Area	0.034
NW.E.3	Minimum Nwell enclosure of straddled NBL	0.24
NW.E.4	Minimum NBL extension into straddled NBL	0.24
NW.A.1	Minimum Nwell area	0.03
NW.EA.1	Minimum Nwell enclosed area	0.18

NWELL RESISTOR WITHIN OXIDE RULES

Data Table: NWRES

RuleName	Description	Value
NWR.E.1	Minimum Active enclosure of Nwell (in resistor)	0.021
NWR.SP.1	Minimum Nwell resistor to other Nwell spacing	0.3

ACTIVE RULES

Data Table: OXIDE

RuleName	Description	Value
OXIDE.W.1	Minimum Active width in the Y direction in steps of 0.048	0.062
OXIDE.W.2	Minimum Active width in the X direction	0.068
OXIDE.SP.1	Minimum Active space in the Y direction in steps of 0.048	0.13
OXIDE.SP.2	Minimum Active space in the X direction	0.018
OXIDE.C.1	Active must be covered by either a N+ type or P+ type implant	

CUT ACTIVE RULES

Data Table: CPA

RuleName	Description	Value
CUTACTIVE.W.1	Minimum CutActive width in the Y direction in steps of 0.048	0.082
CUTACTIVE.W.2	Minimum CutActive width values in the X direction	(18, 20, 24, 28, 30) nm
CUTACTIVE.SP.1	Minimum CutActive space	0.068
CUTACTIVE.SE.1	Minimum CutActive to Active space	0.068
CUTACTIVE.E.1	Minimum CutActive extension beyond Active	0.01

FIN RULES

Data Table: FB48

RuleName	Description	Value
FB48.W.1	Minimum Fin Area width in the Y direction in steps of 0.048	0.062
FB48.W.2	Minimum Fin Area width in the X direction	0.096
FB48.SP.1	Minimum Fin Area space in the Y direction in steps of 0.48	0.034
FB48.E.1	Minimum Fin Area overlap Active in the Y direction in steps of 0.048	0.048
FB48.E.2	Minimum Fin Area overlap Active in the X direction	0.017

THICK ACTIVE (1.8V) RULES

Data Table: OXIDETHK

RuleName	Description	Value
OXIDETHK.W.1	Minimum Thick Active Area width in the Y direction	0.124
OXIDETHK.W.2	Minimum Thick Active Area width in the X direction	0.158
OXIDETHK.SP.1	Minimum Thick Active Area to Thick Active Area spacing in the Y direction	0.068
OXIDETHK.SP.2	Minimum Thick Active Area to Thick Active Area spacing in the X direction	0.064
OXIDETHK.SE.1	Minimum Thick Active Area to Active Area spacing in the Y direction	0.099
OXIDETHK.SE.2	Minimum Thick Active Area to Active Area spacing in the X direction	0.109
OXIDETHK.E.1	Minimum Thick Active Area to Active Area enclosure in the Y direction	0.031
OXIDETHK.E.2	Minimum Thick Active Area to Active Area enclosure in the X direction	0.045

SALICIDE BLOCKING RULES

Data Table: SIPROT

RuleName	Description	Value
SIPROT.W.1	Minimum Salicide Block width	0.042
SIPROT.SP.1	Minimum Salicide Block space	0.044
SIPROT.SE.1	Minimum Salicide Block to Contact spacing	0.009
SIPROT.SE.2	Minimum Salicide Block to unrelated Active Area spacing	0.012
SIPROT.SE.3	Minimum Salicide Block to Poly spacing	0.022
SIPROT.E.1	Minimum Salicide Block to Active Area enclosure	0.012
SIPROT.E.2	Minimum Active Area to Salicide Block enclosure	0.012
SIPROT.E.3	Minimum Salicide Block to Poly enclosure	0.012
SIPROT.A.1	Minimum Salicide Block area	0.0042

NSVT RULES

Data Table: NSVT

RuleName	Description	Value
NSVT.W.1	Minimum NSVT width	0.052
NSVT.SP.1	Minimum NSVT spacing	0.024
NSVT.SE.1	Minimum NSVT to PActive space	0.045
NSVT.A.1	Minimum NSVT area	0.017
NSVT.E.1	Minimum NSVT to Poly enclosure	(().045 0.065)
NSVT.E.2	Minimum NSVT to Active enclosure	(().045 0.065)
NSVT.X.1	NSVT is NOT allowed on Ptype implant	-

NHVT RULES

Data Table: NHVT

RuleName	Description	Value
NHVT.W.1	Minimum NHVT width	0.052
NHVT.SP.1	Minimum NHVT spacing	0.024
NHVT.SE.1	Minimum NHVT to PActive space	0.045
NHVT.A.1	Minimum NHVT area	0.03
NHVT.E.1	Minimum NHVT to Poly enclosure	(().045 0.065)
NHVT.E.2	Minimum NHVT to Active enclosure	(().045 0.065)
NHVT.X.1	NHVT is NOT allowed on Ptype implant	-

NLVT RULES

Data Table: NLVT

RuleName	Description	Value
NLVT.W.1	Minimum NLVT width	0.052
NLVT.SP.1	Minimum NLVT spacing	0.024
NLVT.SE.1	Minimum NLVT to PActive space	0.045
NLVT.A.1	Minimum NLVT area	0.03
NLVT.E.1	Minimum NLVT to Poly enclosure	(().045 0.065)
NLVT.E.2	Minimum NLVT to Active enclosure	(().045 0.065)
NLVT.X.1	NLVT is NOT allowed on Ptype implant	-

PSVT RULES

Data Table: PSVT

RuleName	Description	Value
PSVT.W.1	Minimum PSVT width	0.052
PSVT.SP.1	Minimum PSVT spacing	0.024
PSVT.SE.1	Minimum PSVT to NActive space	0.045
PSVT.A.1	Minimum PSVT area	0.017
PSVT.E.1	Minimum PSVT to Poly enclosure	(().045 0.065)
PSVT.E.2	Minimum PSVT to Active enclosure	(().045 0.065)
PSVT.X.1	PSVT is NOT allowed on Ptype implant	-

PHVT RULES

Data Table: PHVT

RuleName	Description	Value
PHVT.W.1	Minimum PHVT width	0.052
PHVT.SP.1	Minimum PHVT spacing	0.024
PHVT.SE.1	Minimum PHVT to NActive space	0.045
PHVT.A.1	Minimum PHVT area	0.03
PHVT.E.1	Minimum PHVT to Poly enclosure	(().045 0.065)
PHVT.E.2	Minimum PHVT to Active enclosure	(().045 0.065)
PHVT.X.1	PHVT is NOT allowed on Ptype implant	-

PLVT RULES

Data Table: PLVT

RuleName	Description	Value
PLVT.W.1	Minimum PLVT width	0.052
PLVT.SP.1	Minimum PLVT spacing	0.024
PLVT.SE.1	Minimum PLVT to NActive space	0.045
PLVT.A.1	Minimum PLVT area	0.03
PLVT.E.1	Minimum PLVT to Poly enclosure	(().045 0.065)
PLVT.E.2	Minimum PLVT to Active enclosure	(().045 0.065)
PLVT.X.1	PLVT is NOT allowed on Ptype implant	-

POLY RULES

Data Table: POLY

RuleName	Description	Value
POLY.P.1	Poly Pitches are restricted to (86, 90, 94, 102, 104)nm	-
POLY.W.1	Minimum Poly width in the Y direction	0.08
POLY.W.2	Minimum Poly width in the X direction	0.018
POLY.W.3	Maximum Poly width	0.24
POLY.W.4	Maximum Poly length	10.0
POLY.SP.1	Minimum Poly space	0.068
POLY.SP.2	Minimum Poly space with width >= .08	0.12
POLY.SP.3	Minimum Poly space with width >= .16	0.20
POLY.E.1	Minimum gate extension beyond Active Area	0.048

CUT POLY RULES

Data Table: CPO

RuleName	Description	Value
CUTPOLY.W.1	Minimum CutPoly width in the X direction	0.06
CUTPOLY.W.2	Allowed CutPoly width values in the Y direction	(0.06 0.07 0.1 0.12)
CUTPOLY.SP.1	Minimum CutPoly space	0.09
CUTPOLY.SE.1	Minimum CutPoly to Active space	0.02
CUTPOLY.SE.2	Minimum CutPoly to LiPo space	0.019
CUTPOLY.E.1	Minimum CutPoly extension beyond Poly	0.034

LIPO RULES

Data Table: LIPO

RuleName	Description	Value
LIPO.W.1	Allowed width values for LIPO	(0.03, 0.04, 0.05)
LIPO.W.2	Maximum LIPO length	5.0
LIPO.SP.1	Minimum LIPO spacing	0.034
LIPO.SE.1	Minimum LIPO to Poly spacing	0.03
LIPO.SE.2	Minimum LIPO to LIACT spacing	0.013
LIPO.SE.3	Minimum LIPO to Active spacing	0.045
LIPO.E.1	Minimum LIPO into Poly overlap	0.016
LIPO.E.2	Minimum Poly to LIPO extension	0.01

LIACT RULES

Data Table: LIACT

RuleName	Description	Value
LIACT.W.1	Allowed width values for LIACT	(0.03, 0.04, 0.05)
LIACT.W.2	Minimum length of LIACT for width value 0.03	0.062
LIACT.W.3	Minimum length of LIACT for width value 0.04	0.068
LIACT.W.4	Minimum length of LIACT for width value 0.05	0.082
LIACT.W.5	Maximum LIACT length	5.0
LIACT.SP.1	Minimum LIACT spacing	0.046
LIACT.SE.1	Minimum LIACT width=0.03 to Poly width=0.018 spacing	0.019
LIACT.SE.2	Minimum LIACT width=0.03 to Poly width>=0.02 spacing	0.02
LIACT.SE.3	Minimum LIACT width=0.03 to Poly width>=0.028 spacing	0.022
LIACT.SE.4	Minimum LIACT width=0.04 to Poly spacing	0.04
LIACT.SE.5	Minimum LIACT width=0.05 to Poly spacing	0.045
LIACT.SE.6	Minimum LIACT to Poly spacing width>=0.08	0.07
LIACT.SE.7	Minimum LIACT spacing to Active	0.04
LIACT.E.1	Minimum Active enclosure of LIACT on at least two opposite sides	0.014

V0 RULES

Data Table: V0

RuleName	Description	Value
V0.W.1	Maximum and minimum V0 width/length	0.032
V0.SP.1	Minimum V0 to V0 spacing	0.032
V0.SE.1	Minimum V0 to LiAct spacing	0.012
V0.SE.2	Minimum V0 to LiPo spacing	0.024
V0.SE.3	Minimum V0 to Poly spacing	0.018
V0.E.1a	Minimum LiAct to V0 enclosure with LiAct width 0.03	(-0.001 0.018)
V0.E.1b	Minimum LiAct to V0 enclosure with LiAct width 0.04	(0.003 0.018)
V0.E.1c	Minimum LiAct to V0 enclosure with LiAct width 0.05	(0.008 0.018)
V0.E.2a	Minimum LiPo to V0 enclosure with LiPo width 0.03	(-0.001 0.014)
V0.E.2b	Minimum LiPo to V0 enclosure with LiPo width 0.04	(0.004 0.012)
V0.E.2c	Minimum LiPo to V0 enclosure with LiPo width 0.05	(0.009 0.009)
V0.E.3a	Minimum M1 to V0 enclosure with M1 width (Option 1)	(0.0 0.04)
V0.E.3b	Minimum M1 to V0 enclosure with M1 width (Option 2)	(0.009 0.024)

METAL1_X RULES (X=1-3)

Data Table: METAL1X

RuleName	Description	Value
METAL1X.W.1	Minimum MX width	0.032
METAL1X.W.2	Maximum MX width	2.0
METAL1X.SP.1.1	Minimum MX to MX spacing	0.032
METAL1X.SP.2.1	Minimum MX to MX spacing (same mask)	0.048
METAL1X.SP.2.2	Minimum MX to [MX spacing width >= 0.1 run length>= 0.32(same mask)]	0.072
METAL1X.SP.2.3	Minimum MX to [MX spacing width >= 0.75 run length>= 0.75(same mask)]	0.112
METAL1X.SP.2.4	Minimum MX to [MX spacing width >= 1.5 run length>= 1.5(same mask)]	0.22
METAL1X.SP.4.1	Minimum MX end of line spacing (same mask)	0.064
METAL1X.A.1	Minimum MX area	0.006176

VIA1X RULES (X=1-3)

Data Table: VIA1X

RuleName	Description	Value
VIA1X.W.1	Minimum and Maximim square VX width and length	0.032
VIA1X.W.2	Minimum and Maximim rect VX width and length	(0.064 0.032)
VIA1X.SP.1	Minimum VX to VX spacing	0.042
VIA1X.SP.2	Minimum VX to VX spacing (same mask)	0.080
VIA1X.C.1.1	Minimum number of VX in MX width >=0.032 region	1
VIA1X.C.1.2	Minimum number of VX in MX width >=0.0965 region	2
VIA1X.C.1.3	Minimum number of VX in MX width >=0.3 region	4
VIA1X.C.1.4	Minimum number of VX in MX width >=1.0 region	8

METAL1_4 RULES

Data Table: METAL14

RuleName	Description	Value
METAL14.W.1	Minimum M4 width	0.032
METAL14.W.2	Maximum M4 width	2.0
METAL14.SP.2.1	Minimum M4 to M4 spacing	0.048
METAL14.SP.2.2	Minimum M4 to [M4 spacing width >= 0.1 run length>= 0.32]	0.072
METAL14.SP.2.3	Minimum M4 to [M4 spacing width >= 0.75 run length>= 0.75]	0.112
METAL14.SP.2.4	Minimum M4 to [M4 spacing width >= 1.5 run length>= 1.5]	0.22
METAL14.SP.4.1	Minimum M4 end of line spacing	0.064
METAL14.A.1	Minimum M4 area	0.006176

METAL1BX RULES (X=1-3)

Data Table: METAL1BX

RuleName	Description	Value
METAL1BX.E.1.1	Minimum MX width < 0.036 enclosure VX square on 4 sides	(0.0 0.0 0.04 0.04)
METAL1BX.E.1.2	Minimum MX width >= 0.036 and < 0.052 enclosure VX square on 4 sides	(0.002 0.002 0.034 0.05)
METAL1BX.E.1.3	Minimum MX width >= 0.052 and < 0.068 enclosure VX square on 4 sides	(0.028 0.028 0.01 0.01)
METAL1BX.E.1.4	Minimum MX width >= 0.068 enclosure VX square on 4 sides	(0.018 0.018 0.018 0.018)
METAL1BX.E.2.1	Minimum MX width < 0.05 enclosure VX rect on opp sides	(0.02 0.0)
METAL1BX.E.2.2	Minimum MX width >= 0.05 and < 0.052enclosure VX rect on opp sides	(0.012 0.009)
METAL1BX.E.2.3	Minimum MX width >= 0.052 and < 0.106 enclosure VX rect on opp sides	(0.01 0.01)
METAL1BX.E.2.4	Minimum MX width >= 0.106 enclosure VX rect on opp sides	(0.01 0.0)

METAL1TX RULES (X=2-4)

Data Table: METAL1TX

RuleName	Description	Value
METAL1TX.E.1.1	Minimum MX width < 0.036 enclosure V(X-1) square on 4 sides	(0.0 0.0 0.04 0.04)
METAL1TX.E.1.2	Minimum MX width >= 0.036 and < 0.052 enclosure V(X-1) square on 4 sides	(0.002 0.002 0.034 0.05)
METAL1TX.E.1.3	Minimum MX width >= 0.052 and < 0.068 enclosure V(X-1) square on 4 sides	(0.028 0.028 0.01 0.01)
METAL1TX.E.1.4	Minimum MX width >= 0.068 enclosure V(X-1) square on 4 sides	(0.018 0.018 0.018 0.018)
METAL1TX.E.2.1	Minimum MX width < 0.05 enclosure V(X-1) rect on opp sides	(0.02 0.0)
METAL1TX.E.2.2	Minimum MX width >= 0.05 and < 0.052 enclosure V(X-1) rect on opp sides	(0.012 0.009)
METAL1TX.E.2.3	Minimum MX width >= 0.052 and < 0.106 enclosure V(X-1) rect on opp sides	(0.01 0.01)
METAL1TX.E.2.4	Minimum MX width >= 0.106 enclosure V(X-1) rect on opp sides	(0.01 0.0)

VIA2X RULES (X=4-5)

Data Table: VIA2X

RuleName	Description	Value
VIA2X.W.1	Minimum and Maximim VX width and length	0.042
VIA2X.SP.1	Minimum VX to VX spacing	0.062
VIA2X.SP.2	Minimum 3 adjacent VX to VX spacing	0.078
VIA2X.C.1.1	Minimum number of VX in MX width >=0.042 region	1
VIA2X.C.1.2	Minimum number of VX in MX width >=0.1 region	2
VIA2X.C.1.3	Minimum number of VX in MX width >=0.3 region	4
VIA2X.C.1.4	Minimum number of VX in MX width >=1.0 region	8
VIA2X.E.1	Minimum last (1X) MX enclosure of first (2X) VX	(0.008 0.008)

METAL2X RULES (X=5-6)

Data Table: METAL2X

RuleName	Description	Value
METAL2X.W.1	Minimum MX width	0.058
METAL2X.W.2	Maximum MX width	3.0
METAL2X.SP.1.1	Minimum MX to MX spacing	0.068
METAL2X.SP.1.2	Minimum MX to MX spacing width >= 0.06	0.08
METAL2X.SP.1.3	Minimum MX to MX spacing width >= 0.09	0.10
METAL2X.SP.2.1	Minimum MX end of line spacing	0.074
METAL2X.A.1	Minimum MX area	0.0082
METAL2TX.E.1.1	Minimum MX enclosure V(X-1)	(0.008 0.008)

METAL2X RULES (X=5)

Data Table: METAL2BX

RuleName	Description	Value
METAL2BX.E.1.1	Minimum MX enclosure VX	(0.008 0.008)

VIA4X RULES (X=6)

Data Table: VIA4X

RuleName	Description	Value
VIA4X.W.1	Minimum and Maximim VX width and length	0.064
VIA4X.SP.1	Minimum VX to VX spacing	0.084
VIA4X.SP.2	Minimum 3 adjacent VX to VX spacing	0.1
VIA4X.C.1.1	Minimum number of VX in MX width >=0.064 region	1
VIA4X.C.1.2	Minimum number of VX in MX width >=0.15 region	2
VIA4X.C.1.3	Minimum number of VX in MX width >=0.6 region	4
VIA4X.C.1.4	Minimum number of VX in MX width >=1.3 region	8
VIA4X.E.1	Minimum last (2X) MX enclosure of first (4X) VX	(0.015 0.015)

METAL4X RULES (X=7)

Data Table: METAL4X

RuleName	Description	Value
METAL4X.W.1	Minimum MX width	0.069
METAL4X.W.2	Maximum MX width	4.0
METAL4X.SP.2.1	Minimum MX to MX spacing	0.09
METAL4X.SP.2.2	Minimum MX to MX spacing width >= 0.5	0.12
METAL4X.SP.2.3	Minimum MX to MX spacing width >= 1.0	0.4
METAL4X.SP.4.1	Minimum MX end of line spacing	0.096
METAL4X.A.1	Minimum MX area	0.01
METAL4X.E.1.1	Minimum MX enclosure V(X-1)	(0.015 0.015)

CAPACITOR METAL

Data Table: CAPMET

RuleName	Description	Value
CAPMET.W.1	Minimum width of CMT	0.26
CAPMET.S.1	Minimum space of CMT	1.0
CAPMET.E.1	Minimum CMT overlap of VT	(0.08 0.08)
CAPMET.E.2	Minimum last M4X overlap of CMT	(0.04 0.04)

VIAT RULES

Data Table: VIAT

RuleName	Description	Value
VIAT.W.1	Minimum and Maximim VT width and length	0.1
VIAT.SP.1	Minimum VT to VT spacing	0.12
VIAT.SP.2	Minimum 3 adjacent VT to VT spacing	0.16
VIAT.C.1.1	Minimum number of VT in MX width >=0.15 region	1
VIAT.C.1.2	Minimum number of VT in MX width >=0.5 region	2
VIAT.C.1.3	Minimum number of VT in MX width >=1.0 region	4
VIAT.C.1.4	Minimum number of VT in MX width >=2.0 region	8
VIAT.E.1	Minimum last (4X) MX enclosure of VT	(0.03 0.03)

METALT RULES

Data Table: METALT

RuleName	Description	Value
METALT.W.1	Minimum MT width	0.22
METALT.W.2	Maximum MT width	6.0
METALT.SP.1.1	Minimum MT to MT spacing	0.20
METALT.SP.1.2	Minimum MT to MT spacing width >= 0.75	0.35
METALT.SP.1.3	Minimum MT to MT spacing width >= 1.5	0.55
METALT.SP.1.4	Minimum MT to MT spacing width >= 2.5	0.75
METALT.SP.1.5	Minimum MT to MT spacing width >= 3.5	1.25
METALT.E.1	Minimum MT to VT enclosure	(0.06 0.06)
METALT.A.1	Minimum MT area	0.0484

LATCH-UP RULES

Data Table: LATCHUP

RuleName	Description	Value
LATCHUP.1	The maximum distance from any point in a P+ source/drain Active Area to the nearest Nwell pick-up in the same Nwell	20.0
LATCHUP.2	The maximum distance from any point in a N+ source/drain Active Area to the nearest Psub pick-up in the same Psub	20.0
LATCHUP.3	Minimum I/O or ESD NMOS to PMOS spacing	10.0
LATCHUP.4	Minimum I/O or ESD NMOS to PMOS spacing when not blocked by a double guardring	30.0

ANTENNA RULES

Data Table: ANT

RuleName	Description	Value
ANT.1	Maximum ratio of Poly area to the gate area the Poly is connected to	275.0
ANT.2	Maximum ratio of Poly sidewall area to the gate area the Poly is connected to	550.0
ANT.3	Maximum ratio of Poly Contact area to the gate area the Contact is connected with	15.0
ANT.4	Maximum ratio of Metal x (x=1,2,3,4,5,6,7,8,9,10,11) area to the gate area the Metal x is connected to (without diode protection)	475.0
ANT.5	Maximum ratio of Via x (x=1,2,3,4,5,6,7,8,9,10) area to the gate area the Via x is connected with (without diode protection)	25.0
ANT.6	Maximum ratio of cummulative Metal areas to the gate area the Metals are connected to (without diode protection)	1200.0

ESD RULES

Data Table: ESD

RuleName	Description	Value
ESD.1.MIN	Minimum width of each finger of NMOS and PMOS in I/O buffers and in Vdd to Vss ESD protection	10.0
ESD.1.MAX	Maximum width of each finger of NMOS and PMOS in I/O buffers and in Vdd to Vss ESD protection	30.0
ESD.2	Minimum NMOS combined finger width for I/O buffers and in Vdd to Vss ESD protection	210.0
ESD.3	Minimum PMOS combined finger width for I/O buffers and in Vdd to Vss ESD protection	210.0
ESD.11	Minimum SiProt to Poly gate overlap in NMOS and PMOS drains	0.05
ESD.12	Minimum enclosure of SiProt edge to Poly gate edge in NMOS and PMOS drains	0.9
ESD.13	Minimum SiProt to Oxide overlap in NMOS and PMOS I/O drains	0.9
ESD.14	Exact gate length of NMOS and PMOS in I/O buffers and in Vdd to Vss ESD protection	0.2
ESD.15	Minimu Poly gate to Contact spacing in NMOS and PMOS in I/O buffers and in Vdd to Vss ESD protection	0.12

BONDPAD RULES

Data Table: BONDPAD

RuleName	Description	Value
BONDPAD.W.1	Minimum Bondpad width of edges parallel to the die edge	55.0
BONDPAD.L.1	Minimum Bondpad length of edges perpendicular to the die edge	68.0
BONDPAD.SP.1	Minimum Bondpad to Bondpad spacing	8.0
BONDPAD.E.1	Minimum Metal (all levels) enclosure of Bondpad	2.0
BONDPAD.SP.2	Minimum Bondpad Metal to Metal (including Bondpad Metal) spacing	3.0
BONDPAD.B.1.MIN	Minimum length of Bondpad Metal beveled corner All Bondpad Metal corners must be beveled at 45 degrees	1.8
BONDPAD.B.1.MAX	Maximum length of Bondpad Metal beveled corner All Bondpad Metal corners must be beveled at 45 degrees	3.2
BONDPAD.W.2	Minimum and maximum Bondpad Via k width (k=1,2,3,4,5,6,7,8)	0.14
BONDPAD.W.3	Minimum and maximum Bondpad Via k width (k=9,10)	0.36
BONDPAD.SP.3	Minimum Bondpad Via k to Bondpad Via k spacing (k=1,2,3,4,5,6,7,8)	0.22
BONDPAD.SP.4	Minimum Bondpad Via k to Bondpad Via k spacing (k=9,10)	0.54
BONDPAD.E.2	Minimum Bondpad Metal k to Bondpad Via k enclsure (k=1,2,3,4,5,6,7,8) Minimum Bondpad Metal k+1 to Bondpad Via k enclosure (k=1,2,3,4,5,6,7,8)	0.05
BONDPAD.E.3	Minimum Bondpad Metal k to Bondpad Via k enclsure (k=9,10)) Minimum Bondpad Metal k+1 to Bondpad Via k enclosure (k=9,10)	0.09
BONDPAD.R.1	Minimum Bondpad Via k inside Metal k to Metal k+1 crossing (k=1,2,3,4,5,6,7,8)	16.0
BONDPAD.R.2	Minimum Bondpad Via k inside Metal k to Metal k+1 crossing (k=9,10)	4.0
BONDPAD.SP.5	Minimum and Maximum Pad Metal slot to Pad Metal slot spacing	1.5
BONDPAD.W.4	Minimum and Maximum Pad Metal slot width (except first slot on each edge of Pad)	1.0
BONDPAD.W.5	Minimum and Maximum Pad Metal k width in outer ring of Pad Metal k (except for the beveled corners) (k=1,2,3,4,5,6,7,8,9,10,11)	5.0
BONDPAD.SP.6.MIN	Minimum Pad Metal k ring to nearest Pad Metal k across first slot (k=1,2,3,4,5,6,7,8,9,10,11)	1.0
BONDPAD.SP.6.MAX	Maximum Pad Metal k ring to nearest Pad Metal k across first slot (k=1,2,3,4,5,6,7,8,9,10,11)	3.5
BONDPAD.SP.7	Minimum Pad Via k array to Pad Via k array spacing	1.1

Active	undefined	
BurriedNWell	undefined	
CMT	undefined	
CutActive	undefined	
CutPoly	undefined	
ISOPSUB	undefined	
LiAct	undefined	via
LiPo	undefined	via
M1	undefined	
M2	undefined	
M3	undefined	
M4	undefined	
M5	undefined	
M6	undefined	
M7	undefined	
MT	undefined	
NWell	undefined	
Nsvt	undefined	
P_SUBSTRATE	undefined	
Poly	undefined	
Psvt	undefined	
V0	undefined	via
V1	undefined	via
V2	undefined	via
V3	undefined	via
V4	undefined	via
V5	undefined	via
V6	undefined	via
VT	undefined	via