



## Schematics Page Index (Title / Revision / Change Date)

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03	Clarksfield (DMI,PEG,FDI)	A00	09'12'25	38	BT & CAMERA/Dig MIC CON	A00	09'12'25
04	Clarksfield (CLK,MISC,JTAG)	A00	09'12'25	39	Broadcom LAN(BCM57780M)	A00	09'12'25
05	Clarksfield (DDR3)	A00	09'12'25	40	Audio (CODEC & POWER)	A00	09'12'25
06	Clarksfield (POWER)	A00	09'12'25	41	Audio (HP,EXT MIC)	A00	09'12'25
07	Clarksfield (GRAPHICS POWER)	A00	09'12'25	42	Audio (SPKR)	A00	09'12'25
08	Clarksfield (GND)	A00	09'12'25	43	Audio (MUTE)	A00	09'12'25
09	Clarksfield (RESERVED)	A00	09'12'25	44	FAN/Thermal/G Sensor	A00	09'12'25
10	CLOCK GEN	A00	09'12'25	45	USB2.0 & e-SATA	A00	09'12'25
11	PCH (HDA,JTAG,SAT)	A00	09'12'25	46	DB board connector (MB)	A00	09'12'25
12	PCH (PCI-E,SMBUS,CLK)	A00	09'12'25	47	PWR BTN & BT & LED DB	A00	09'12'25
13	PCH (DMI,FDI,GPIO)	A00	09'12'25	48	SATA HDD/ODD	A00	09'12'25
14	PCH (LVDS,DDI)	A00	09'12'25	49	Power Design Diagram	A00	09'12'25
15	PCH (PCI,USB,NVRAM)	A00	09'12'25	50	DCIN & Battery	A00	09'12'25
16	PCH (GPIO,VSS NCTF,RSVD)	A00	09'12'25	51	MAX8731A Smart Charger	A00	09'12'25
17	PCH (POWER) 1/2	A00	09'12'25	52	MAX17020 (+3.3V/+5V)	A00	09'12'25
18	PCH (POWER) 2/2	A00	09'12'25	53	SYS Power+1.1VTT/+1.05V	A00	09'12'25
19	PCH (VSS)	A00	09'12'25	54	DDR3 Power(+1.5V/+0.75V)	A00	09'12'25
20	DDR3(SO-DIMM 0) 1/2	A00	09'12'25	55	CPU Power VHCORE	A00	09'12'25
21	DDR3(SO-DIMM 1) 2/2	A00	09'12'25	56	CPU Power DRV-PHASE3	A00	09'12'25
22	VGA (PCI-E) 1/6	A00	09'12'25	57	VGA Power(ATI VDD)	A00	09'12'25
23	VGA (STRAP) 2/6	A00	09'12'25	58	SYS Power +1.8V	A00	09'12'25
24	VGA (IO) 3/6	A00	09'12'25	59	Others power plane	A00	09'12'25
25	VGA (DDR3) 4/6	A00	09'12'25	60	HOLE	A00	09'12'25
26	VGA (DP) 5/6	A00	09'12'25	61	History (1)	A00	09'12'25
27	VGA (POWER) 6/6	A00	09'12'25	62	History (2)	A00	09'12'25
28	VRAM (DDR3) 1/3	A00	09'12'25	63	History (3)	A00	09'12'25
29	VRAM (DDR3) 2/3	A00	09'12'25	64	Power History (1)	A00	09'12'25
30	VRAM (BYPASS) 3/3	A00	09'12'25	65	Power History (2)	A00	09'12'25
31	CRT	A00	09'12'25	66			
32	LVDS	A00	09'12'25	67			
33	HDMI	A00	09'12'25	68			
34	EC+KBC(IT8502E)	A00	09'12'25	69			
35	Flash ROM/SPI	A00	09'12'25	70			

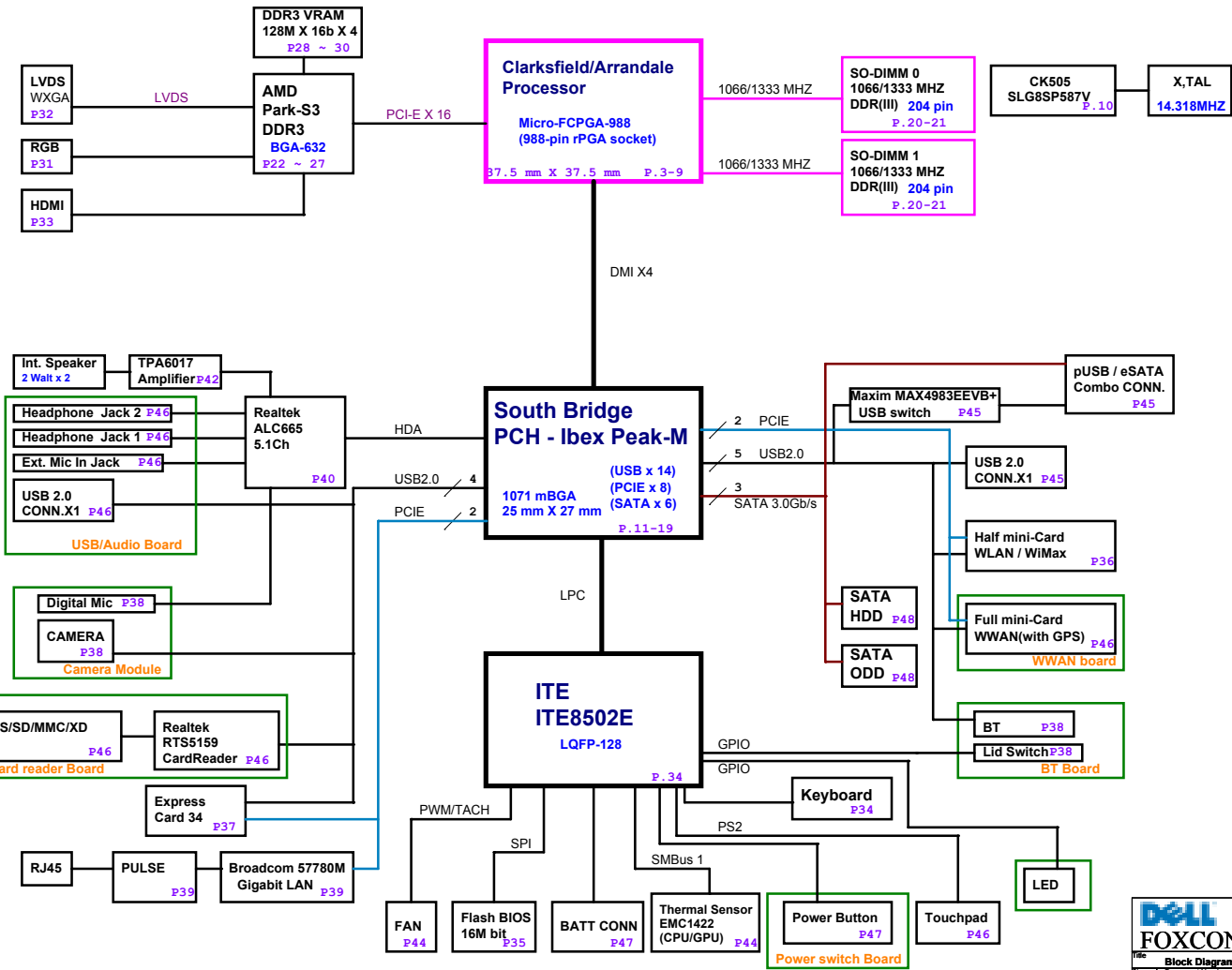
Project Code &amp; Schematics Subject: H902 Main Board 8L

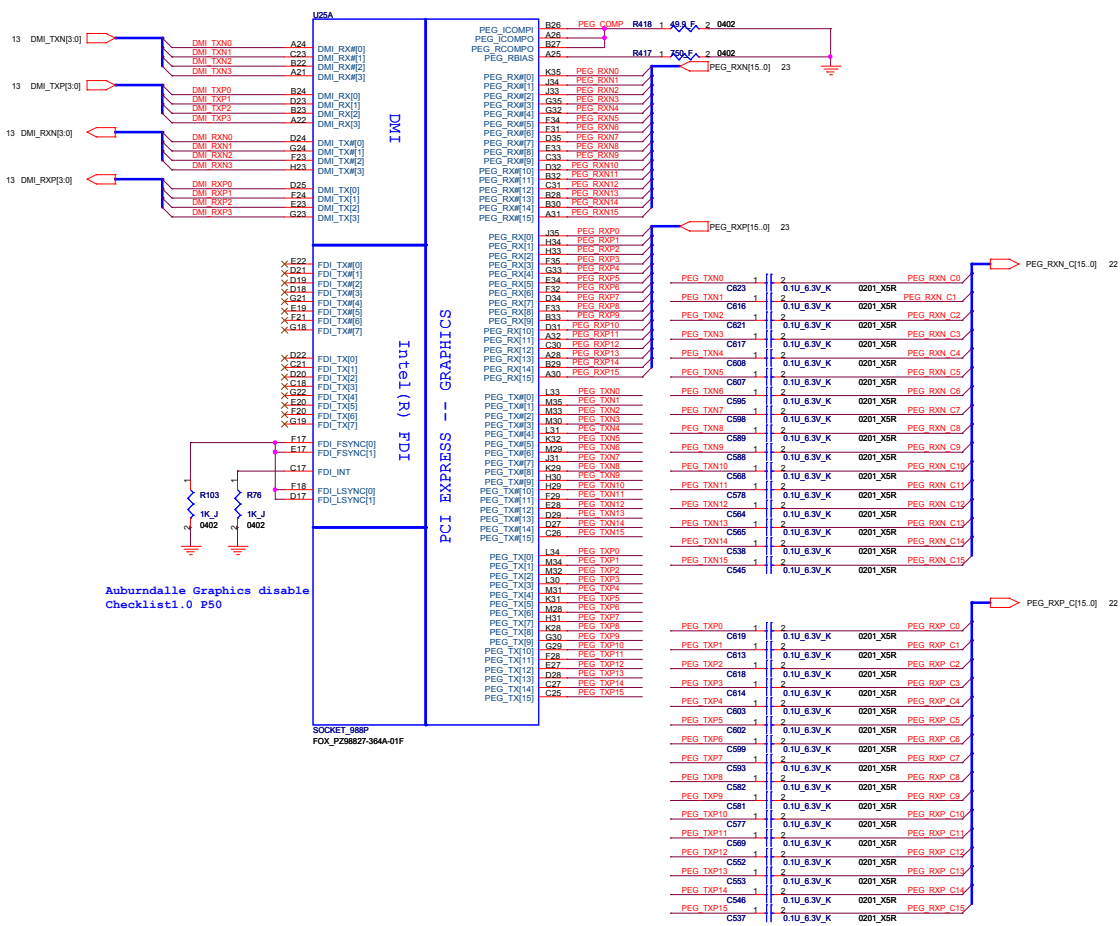
PCB P/N:	1P-009CJ00-8000 (IRIS)
	1P-009C500-8000 (HANNSTAR)
	1P-009C200-8000 (NANYA)
BT DB P/N:	1P-1098J01-8000 (IRIS)
	1P-1098501-8000 (HANNSTAR)
	1P-1098201-8000 (NANYA)
LED DB P/N:	1P-1098J00-8000 (IRIS)
	1P-1098500-8000 (HANNSTAR)
	1P-1098200-8000 (NANYA)
P/B DB P/N:	1P-1098J02-8000 (IRIS)
	1P-1098502-8000 (HANNSTAR)
	1P-1098202-8000 (NANYA)

P. Leader	Check by	Design by

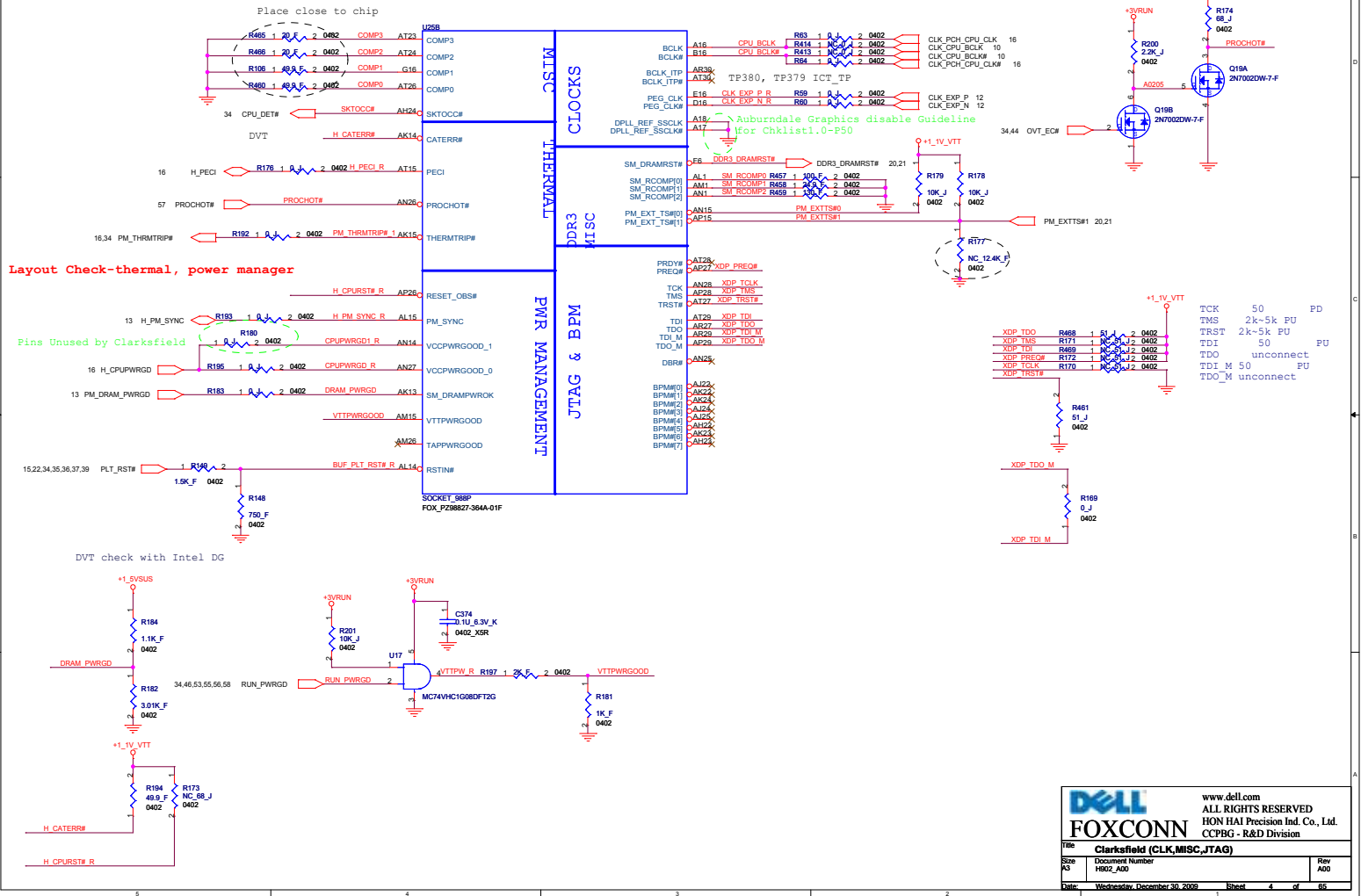
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		CCPBG - R&D Division	
Title Index Page			
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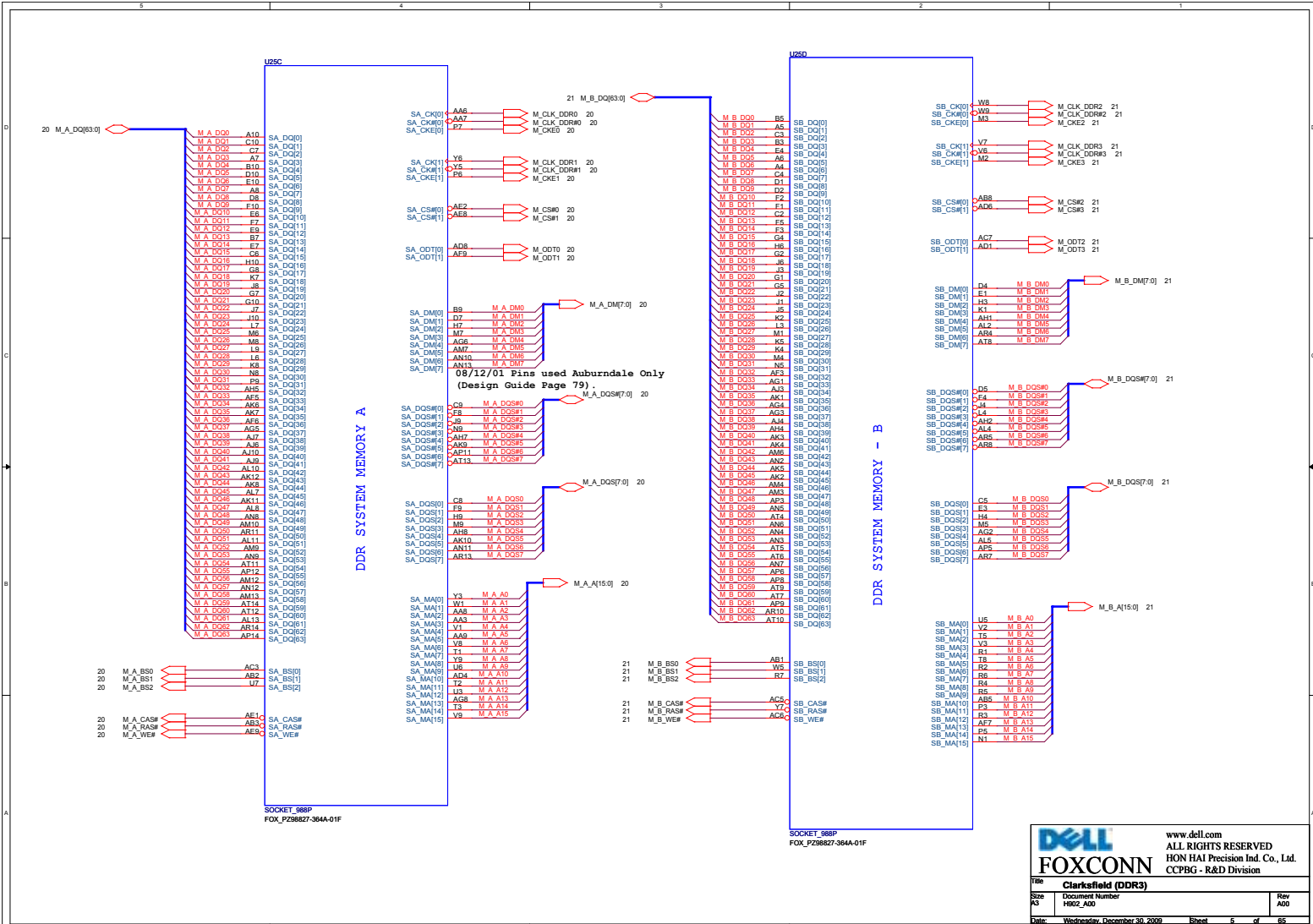
# H902 Calpella + Discrete VGA

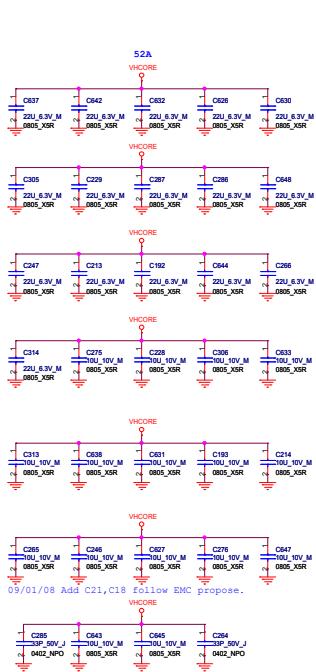




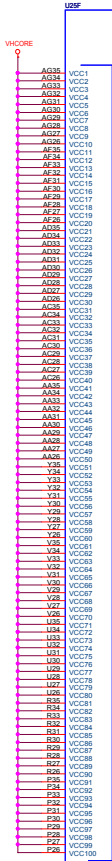
Layout Note:  
Comp0,2 connect with Zo=27.4 ohm, make trace length shorter then 0.5". Width=20mil(MS)  
Comp1,3 connect with Zo=55 ohm, make trace length shorter then 0.5". Width=5mil(MS)





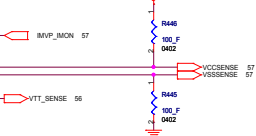
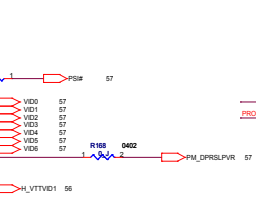
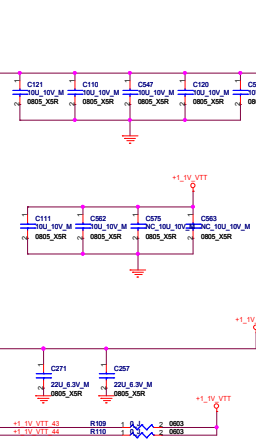
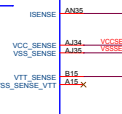
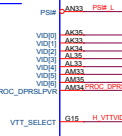
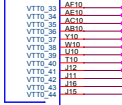
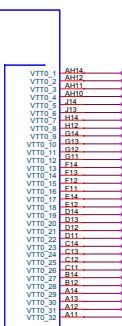


09/01/08 Add C21,C18 follow EMC propose.

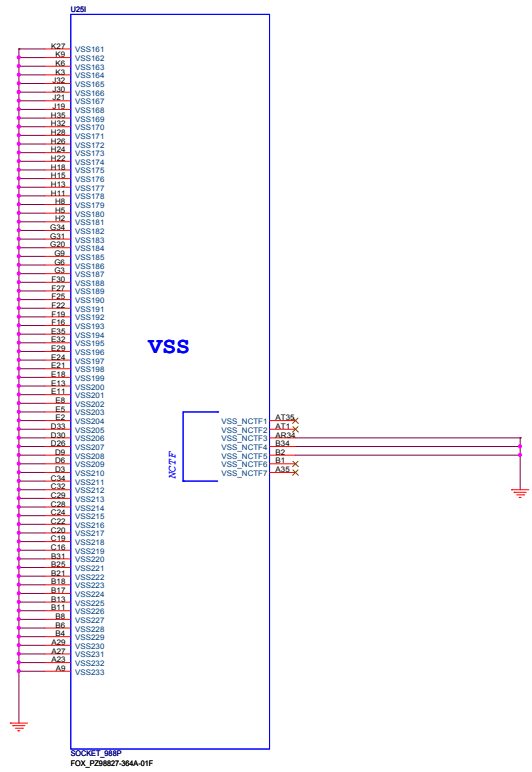
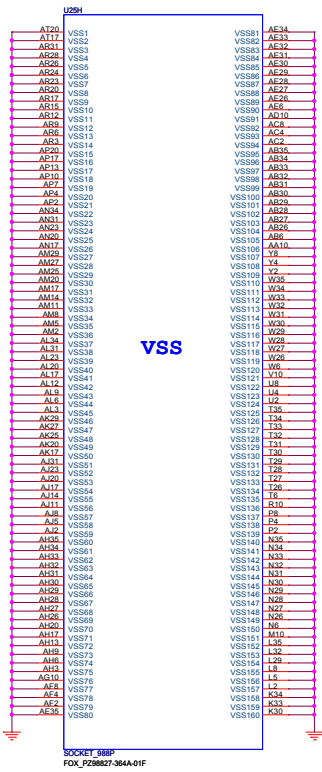


SOCKET\_98P  
FOX\_P238627-36A4-01P

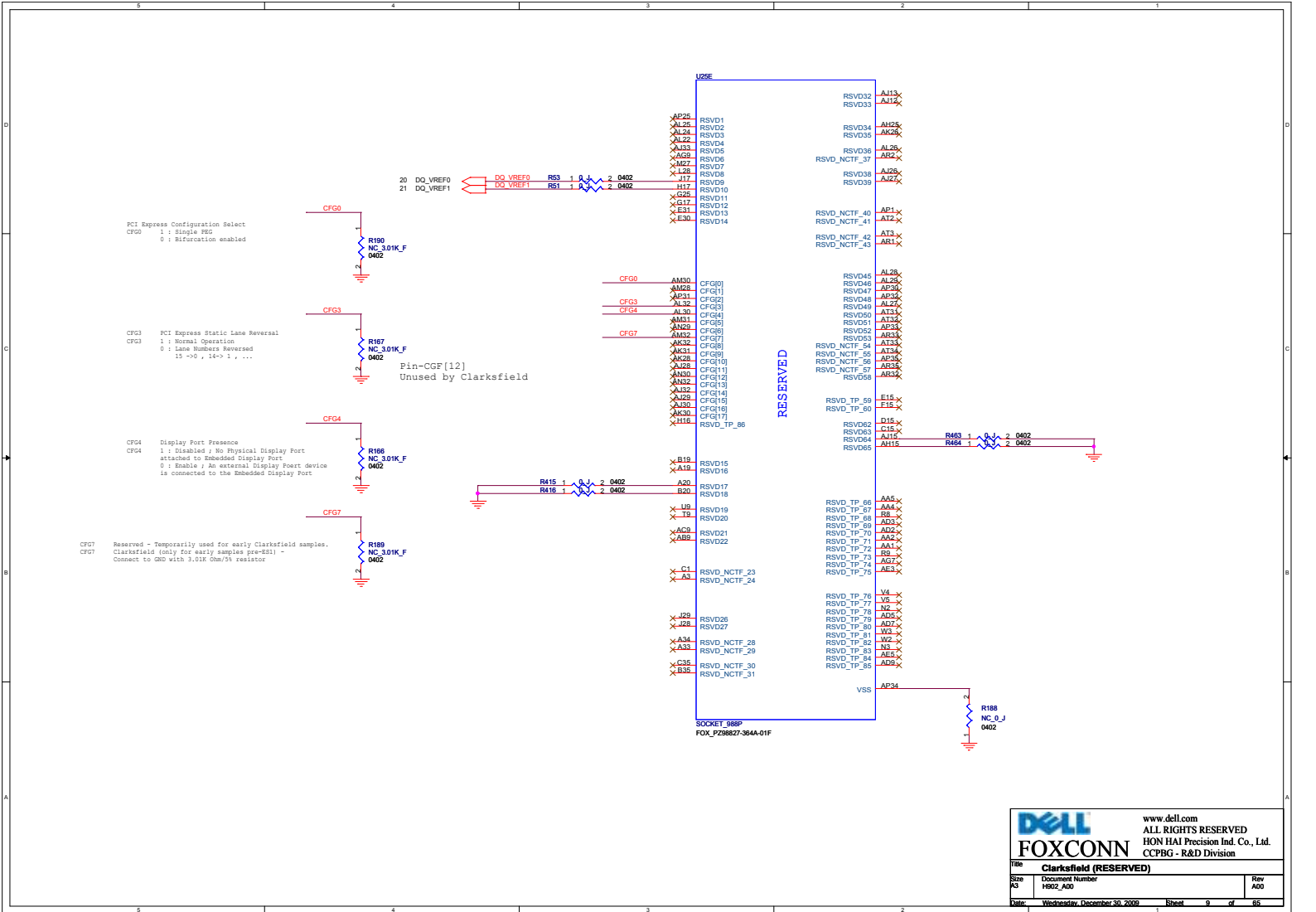
1.1V RAIL POWER  
CPU CORE SUPPLY

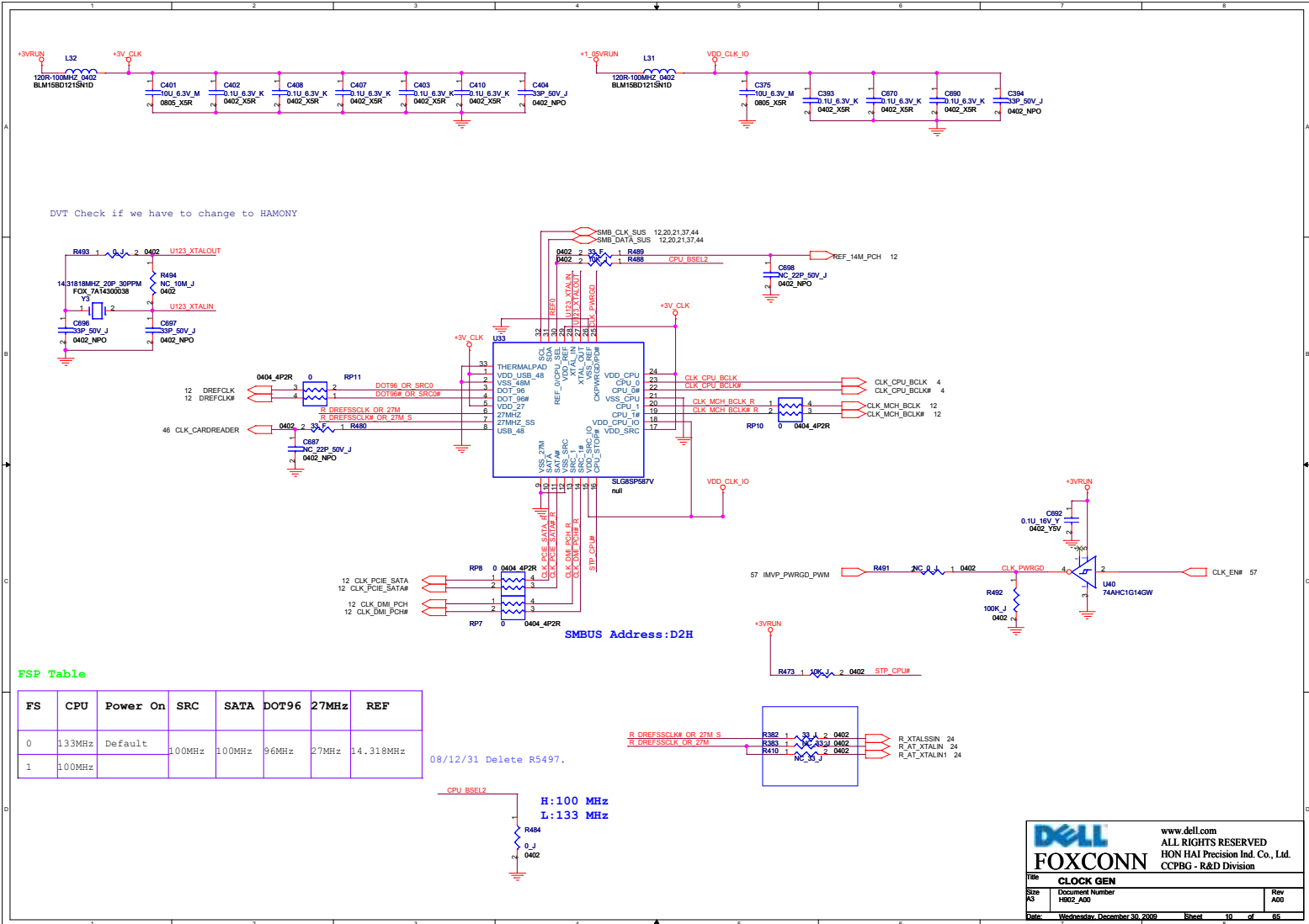


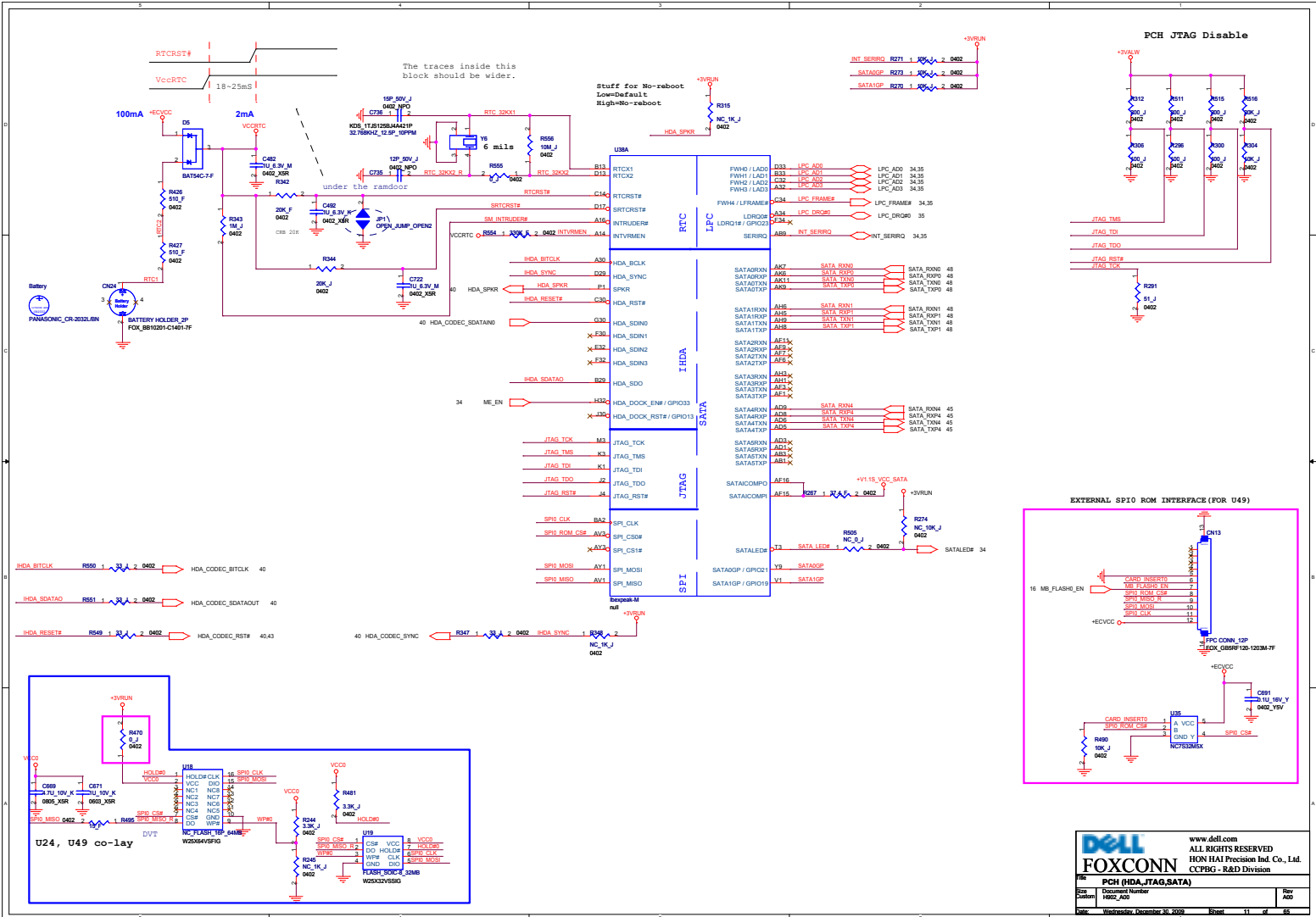






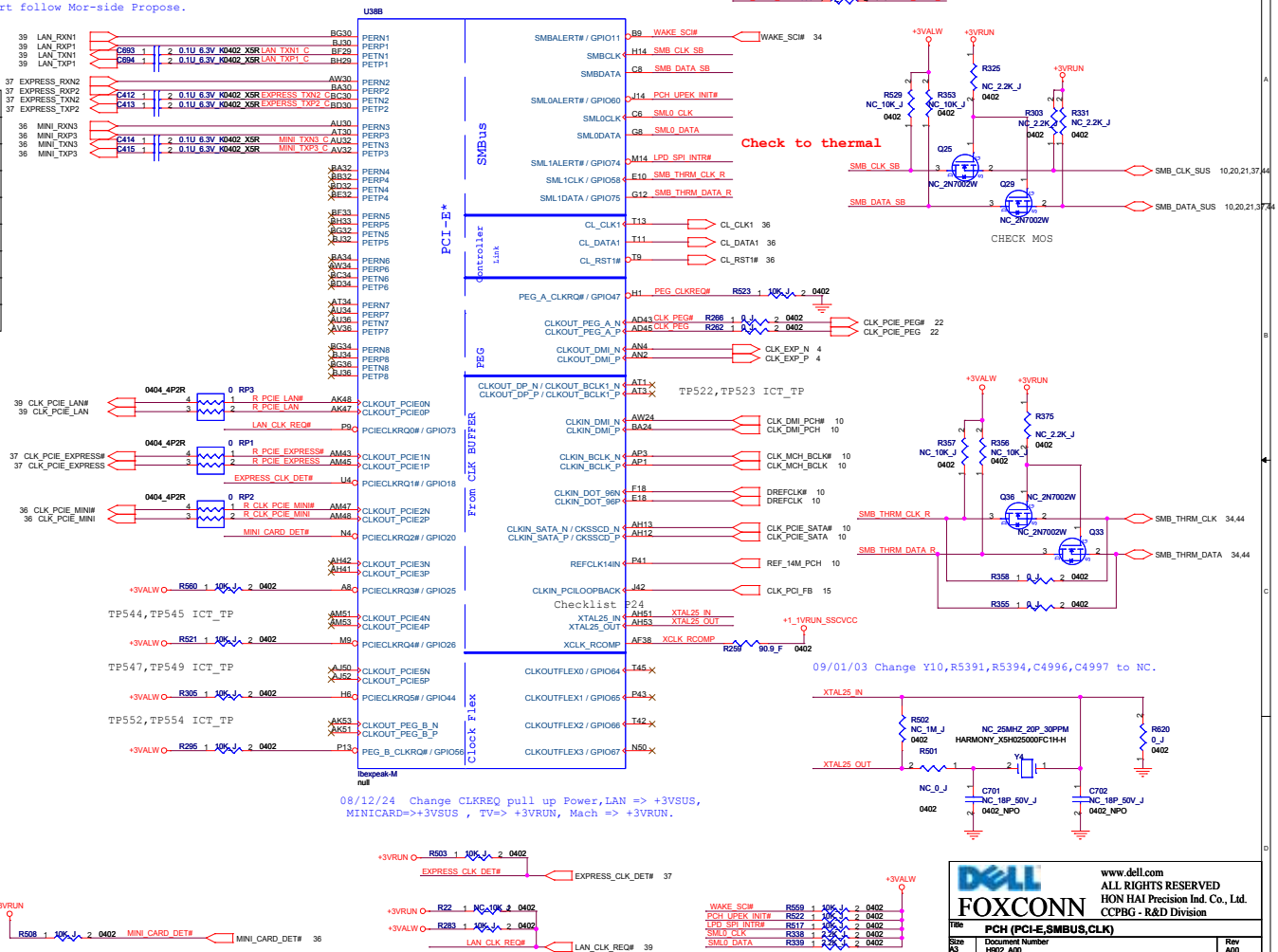







SMB CLK SB R527 1 0 J 2 0402 SMB CLK SUS  
SMB DATA SB R336 1 0 J 2 0402 SMB DATA SUS

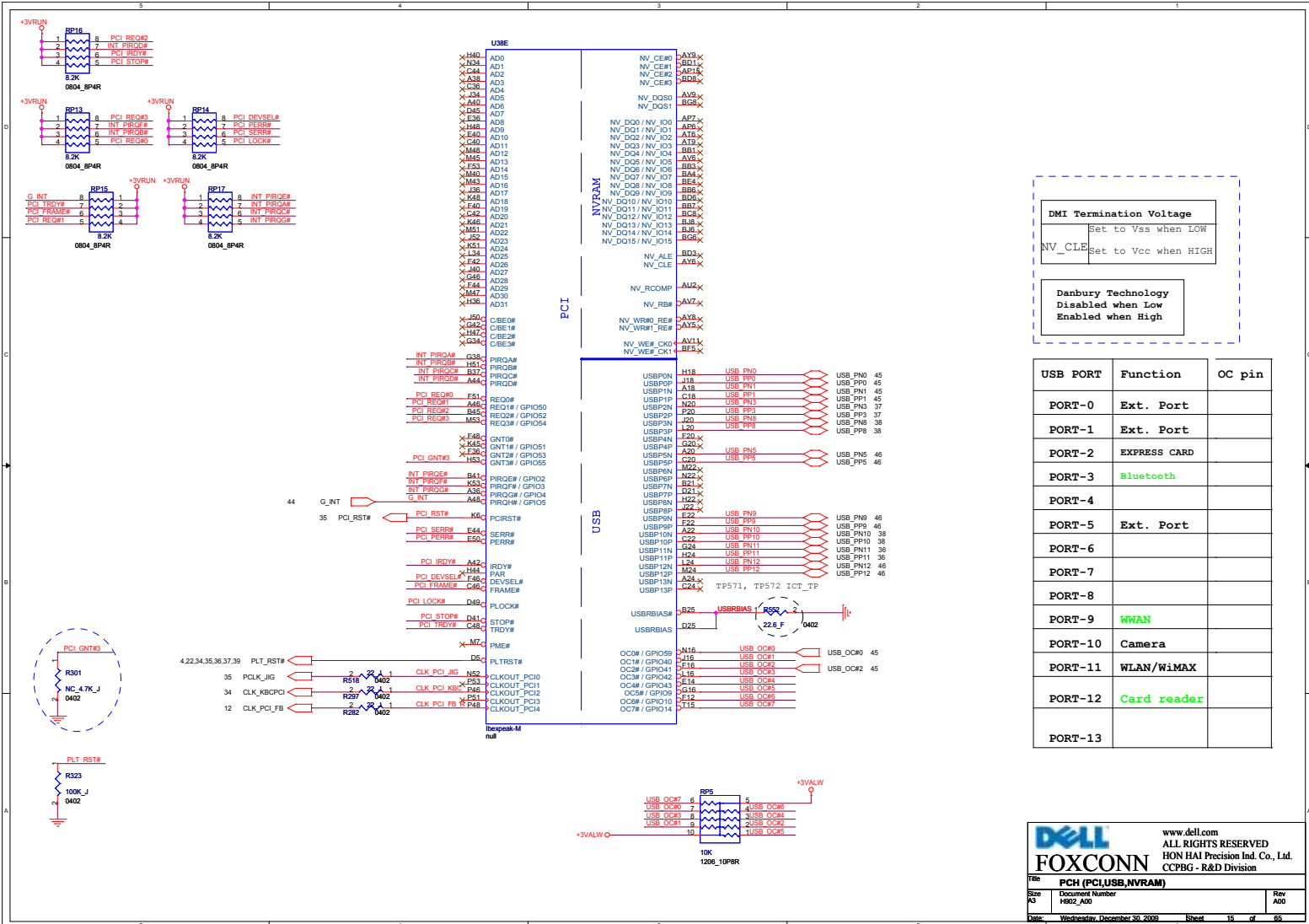
Port	Function
Port1	LAN
Port2	Express Card
Port3	WLAN
Port4	Un-used
Port5	Un-used
Port6	Un-used
Port7	Un-used
Port8	Un-used

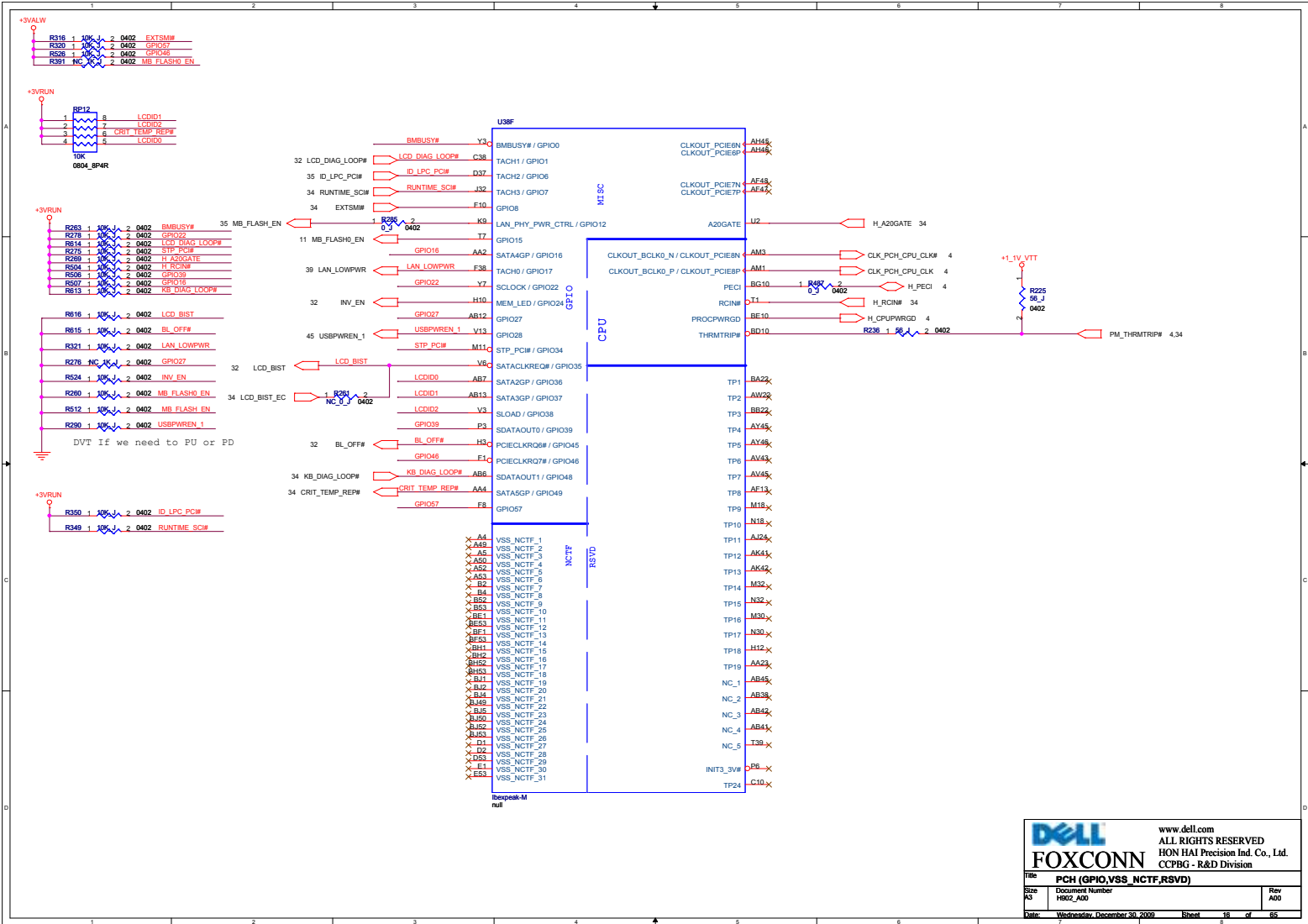



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<b>Title PCH (PCI-E, SMBUS, CLK)</b>			
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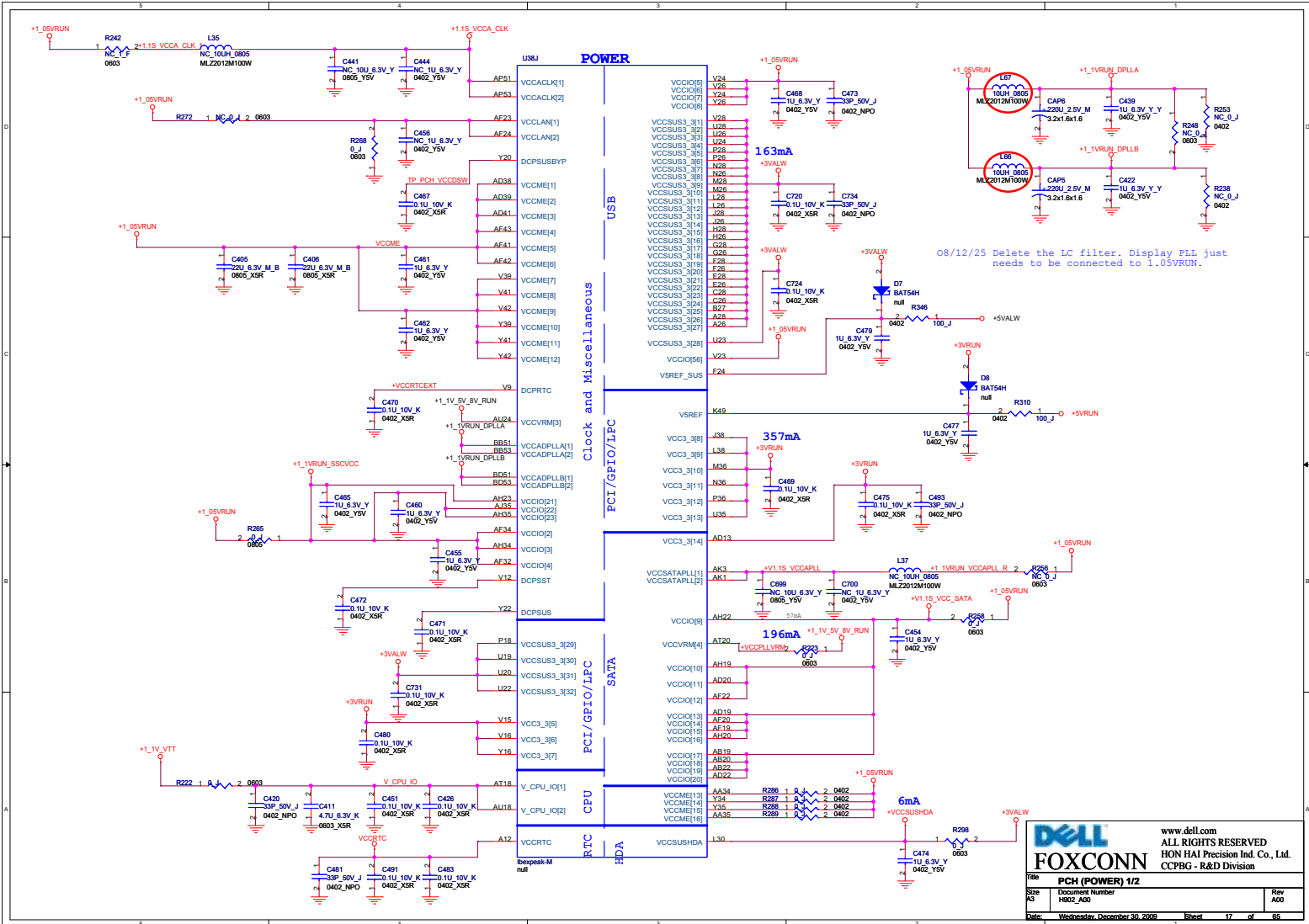


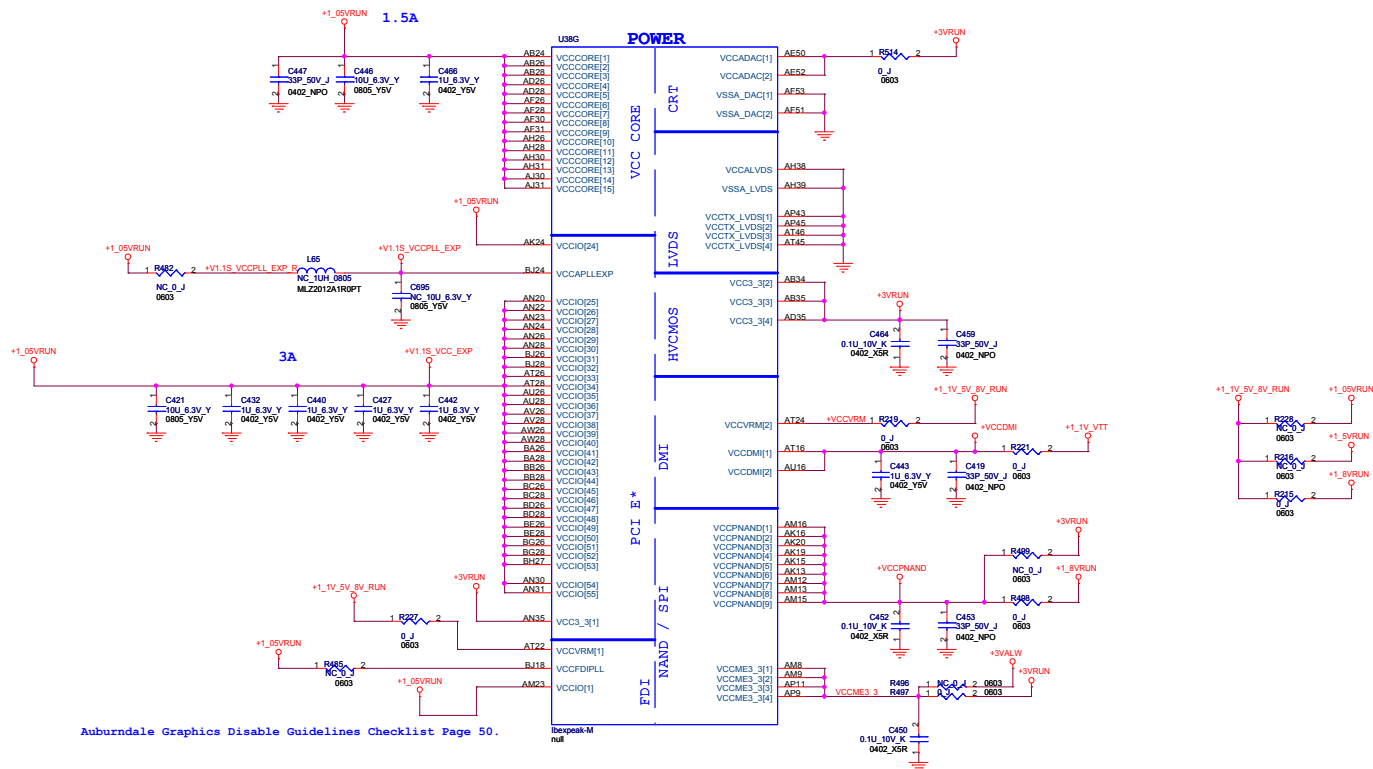




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Title: <b>PCH (GPIO,VSS_NCTF,RSVD)</b>			
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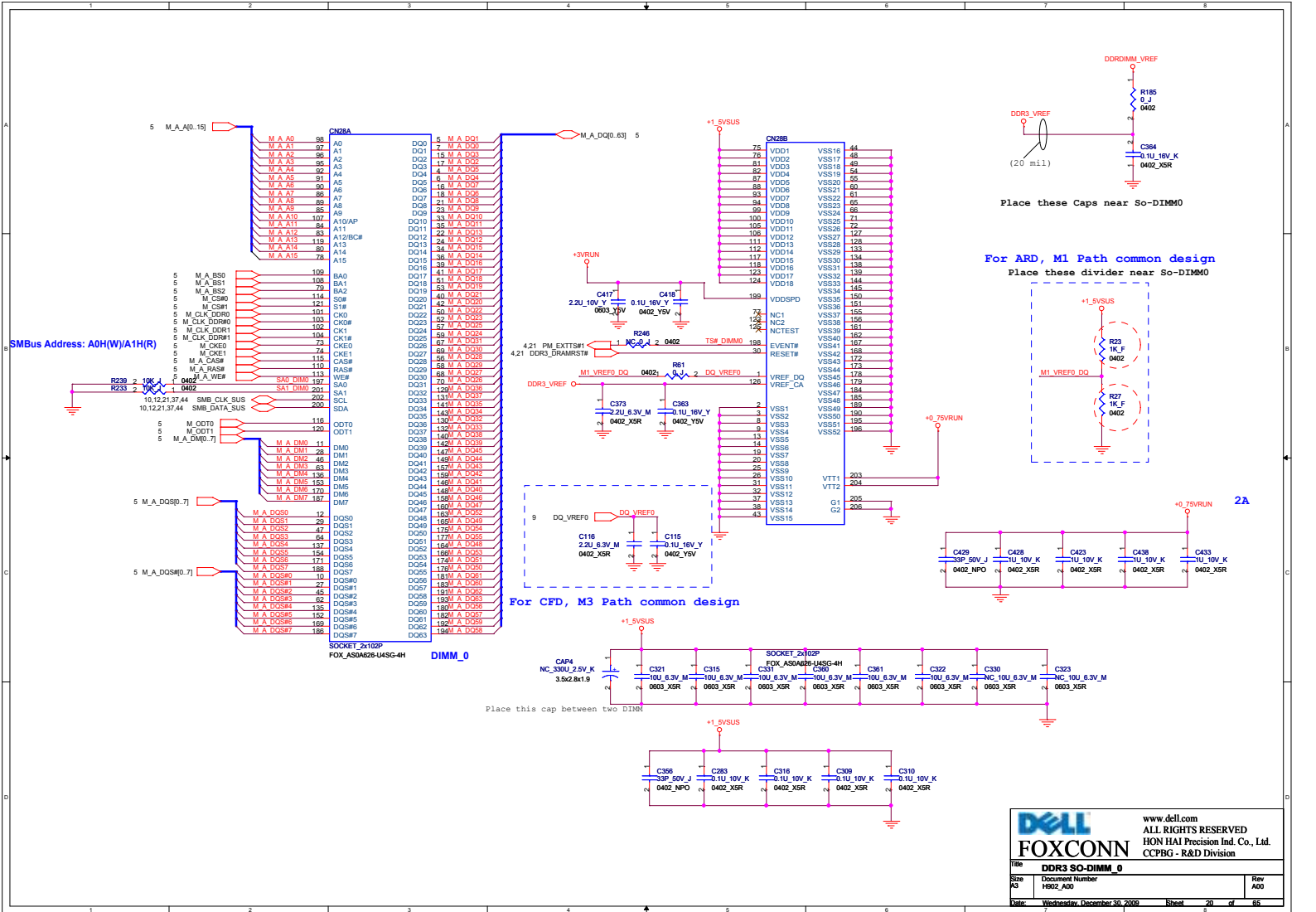


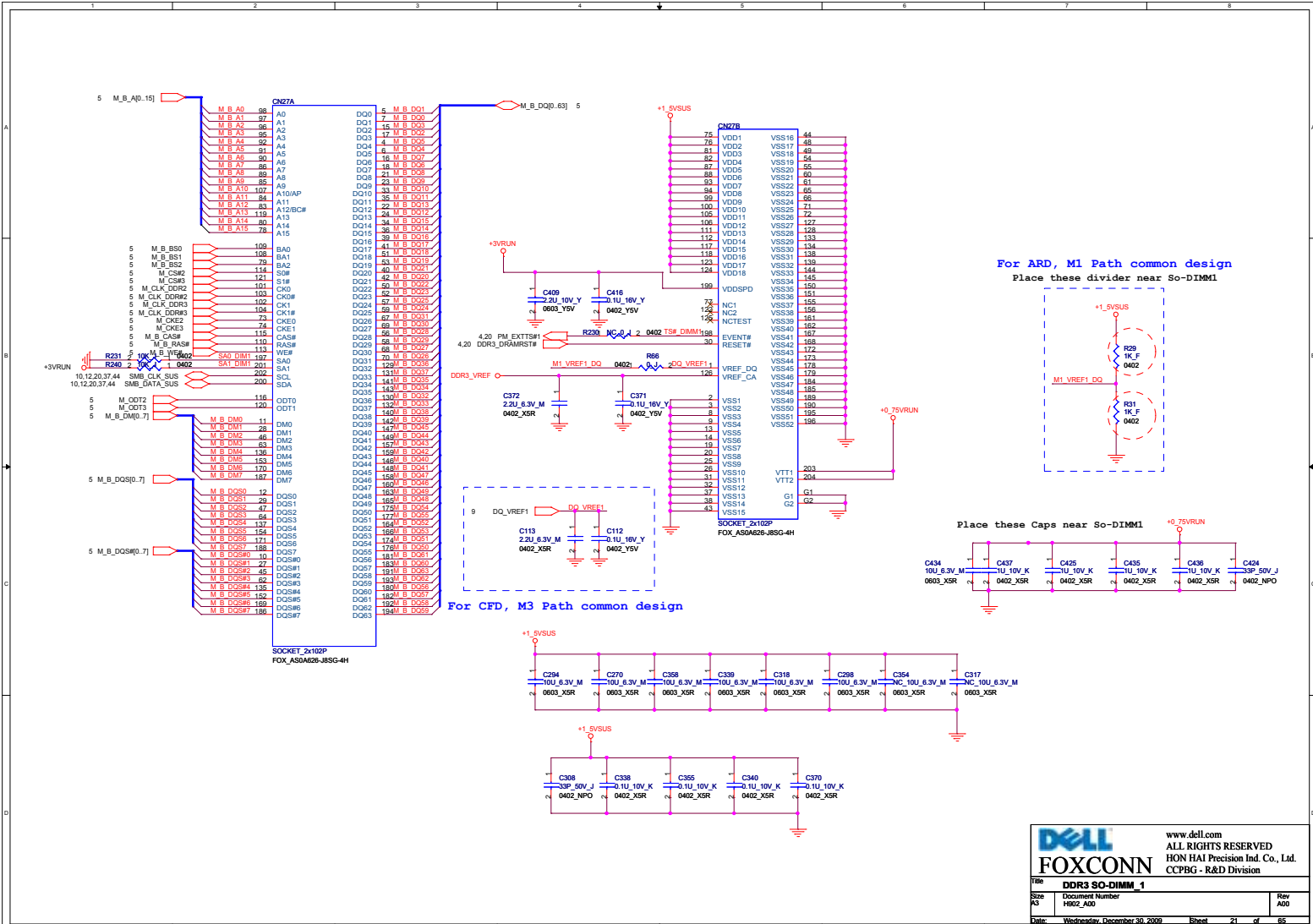


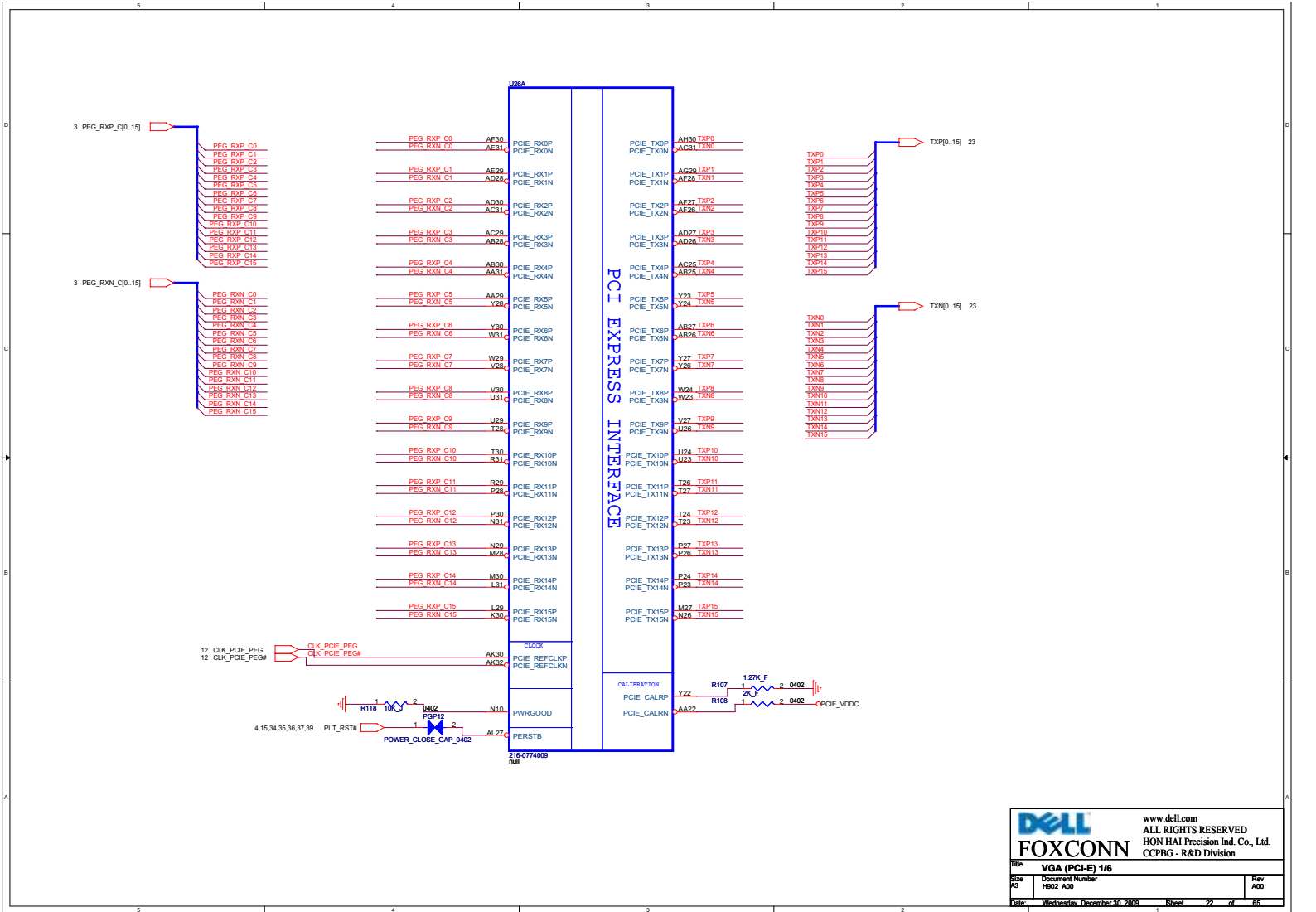


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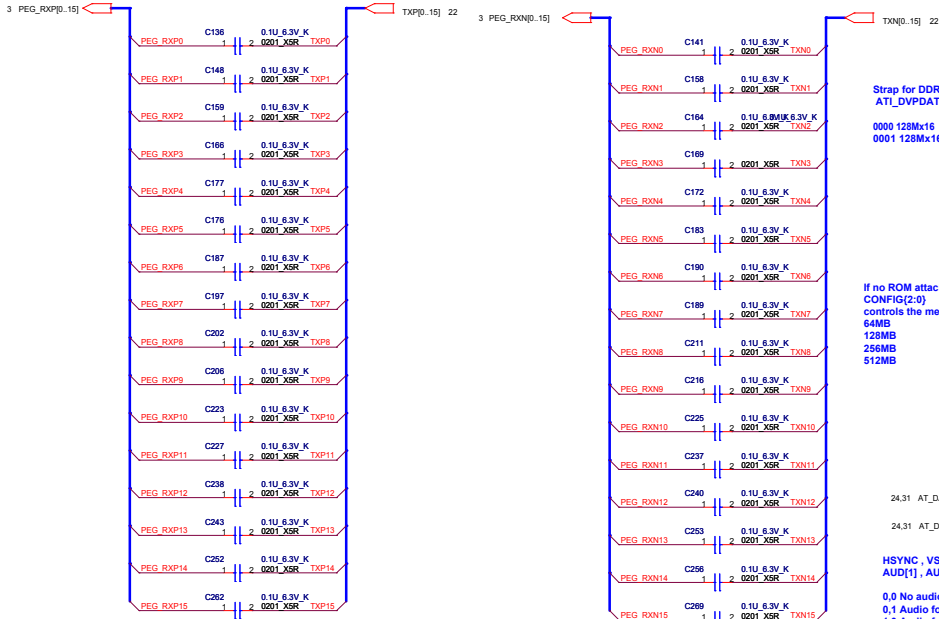
AV7	VSS1599	H49
B11	VSS1600	H5
B15	VSS1601	J24
B19	VSS1602	J43
B23	VSS1603	K47
B27	VSS1604	K7
B31	VSS1605	L14
B35	VSS1606	L18
B39	VSS1607	L2
B43	VSS1608	L22
B47	VSS1609	L32
B51	VSS1610	L36
B55	VSS1611	L40
B59	VSS1612	L44
B63	VSS1613	M12
B67	VSS1614	M16
B71	VSS1615	M20
B75	VSS1616	M24
B79	VSS1617	M28
B83	VSS1618	M32
B87	VSS1619	M36
B91	VSS1620	M40
B95	VSS1621	M44
B99	VSS1622	M48
C03	VSS1623	M52
C07	VSS1624	M56
C11	VSS1625	M60
C15	VSS1626	M64
C19	VSS1627	M68
C23	VSS1628	M72
C27	VSS1629	M76
C31	VSS1630	M80
C35	VSS1631	M84
C39	VSS1632	M88
C43	VSS1633	M92
C47	VSS1634	M96
C51	VSS1635	M100
C55	VSS1636	M104
C59	VSS1637	M108
C63	VSS1638	M112
C67	VSS1639	M116
C71	VSS1640	M120
C75	VSS1641	M124
C79	VSS1642	M128
C83	VSS1643	M132
C87	VSS1644	M136
C91	VSS1645	M140
C95	VSS1646	M144
C99	VSS1647	M148
D03	VSS1648	M152
D07	VSS1649	M156
D11	VSS1650	M160
D15	VSS1651	M164
D19	VSS1652	M168
D23	VSS1653	M172
D27	VSS1654	M176
D31	VSS1655	M180
D35	VSS1656	M184
D39	VSS1657	M188
D43	VSS1658	M192
D47	VSS1659	M196
D51	VSS1660	M200
D55	VSS1661	M204
D59	VSS1662	M208
D63	VSS1663	M212
D67	VSS1664	M216
D71	VSS1665	M220
D75	VSS1666	M224
D79	VSS1667	M228
D83	VSS1668	M232
D87	VSS1669	M236
D91	VSS1670	M240
D95	VSS1671	M244
D99	VSS1672	M248
E03	VSS1673	M252
E07	VSS1674	M256
E11	VSS1675	M260
E15	VSS1676	M264
E19	VSS1677	M268
E23	VSS1678	M272
E27	VSS1679	M276
E31	VSS1680	M280
E35	VSS1681	M284
E39	VSS1682	M288
E43	VSS1683	M292
E47	VSS1684	M296
E51	VSS1685	M300
E55	VSS1686	M304
E59	VSS1687	M308
E63	VSS1688	M312
E67	VSS1689	M316
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E75	VSS1691	M324
E79	VSS1692	M328
E83	VSS1693	M332
E87	VSS1694	M336
E91	VSS1695	M340
E95	VSS1696	M344
E99	VSS1697	M348
F03	VSS1698	M352
F07	VSS1699	M356
F11	VSS1700	M360
F15	VSS1701	M364
F19	VSS1702	M368
F23	VSS1703	M372
F27	VSS1704	M376
F31	VSS1705	M380
F35	VSS1706	M384
F39	VSS1707	M388
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F51	VSS1710	M400
F55	VSS1711	M404
F59	VSS1712	M408
F63	VSS1713	M412
F67	VSS1714	M416
F71	VSS1715	M420
F75	VSS1716	M424
F79	VSS1717	M428
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F87	VSS1719	M436
F91	VSS1720	M440
F95	VSS1721	M444
F99	VSS1722	M448
G03	VSS1723	M452
G07	VSS1724	M456
G11	VSS1725	M460
G15	VSS1726	M464
G19	VSS1727	M468
G23	VSS1728	M472
G27	VSS1729	M476
G31	VSS1730	M480
G35	VSS1731	M484
G39	VSS1732	M488
G43	VSS1733	M492
G47	VSS1734	M496
G51	VSS1735	M500
G55	VSS1736	M504
G59	VSS1737	M508
G63	VSS1738	M512
G67	VSS1739	M516
G71	VSS1740	M520
G75	VSS1741	M524
G79	VSS1742	M528
G83	VSS1743	M532
G87	VSS1744	M536
G91	VSS1745	M540
G95	VSS1746	M544
G99	VSS1747	M548
H03	VSS1748	M552
H07	VSS1749	M556
H11	VSS1750	M560
H15	VSS1751	M564
H19	VSS1752	M568
H23	VSS1753	M572
H27	VSS1754	M576
H31	VSS1755	M580
H35	VSS1756	M584
H39	VSS1757	M588
H43	VSS1758	M592
H47	VSS1759	M596
H51	VSS1760	M600
H55	VSS1761	M604
H59	VSS1762	M608
H63	VSS1763	M612
H67	VSS1764	M616
H71	VSS1765	M620
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H79	VSS1767	M628
H83	VSS1768	M632
H87	VSS1769	M636
H91	VSS1770	M640
H95	VSS1771	M644
H99	VSS1772	M648
I03	VSS1773	M652
I07	VSS1774	M656
I11	VSS1775	M660
I15	VSS1776	M664
I19	VSS1777	M668
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I31	VSS1780	M680
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I43	VSS1783	M692
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I67	VSS1789	M716
I71	VSS1790	M720
I75	VSS1791	M724
I79	VSS1792	M728
I83	VSS1793	M732
I87	VSS1794	M736
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I99	VSS1797	M748
J03	VSS1798	M752
J07	VSS1799	M756
J11	VSS1800	M760
J15	VSS1801	M764
J19	VSS1802	M768
J23	VSS1803	M772
J27	VSS1804	M776
J31	VSS1805	M780
J35	VSS1806	M784
J39	VSS1807	M788
J43	VSS1808	M792
J47	VSS1809	M796
J51	VSS1810	M800
J55	VSS1811	M804
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J63	VSS1813	M812
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J87	VSS1819	M836
J91	VSS1820	M840
J95	VSS1821	M844
J99	VSS1822	M848
K03	VSS1823	M852
K07	VSS1824	M856
K11	VSS1825	M860
K15	VSS1826	M864
K19	VSS1827	M868
K23	VSS1828	M872
K27	VSS1829	M876
K31	VSS1830	M880
K35	VSS1831	M884
K39	VSS1832	M888
K43	VSS1833	M892
K47	VSS1834	M896
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K99	VSS1847	M948
L03	VSS1848	M952
L07	VSS1849	M956
L11	VSS1850	M960
L15	VSS1851	M964
L19	VSS1852	M968
L23	VSS1853	M972
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L87	VSS1869	M1036
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L95	VSS1871	M1044
L99	VSS1872	M1048
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M67	VSS1889	M1116
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M75	VSS1891	M1124
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M83	VSS1893	M1132
M87	VSS1894	M1136
M91	VSS1895	M1140
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M99	VSS1897	M1148
N03	VSS1898	M1152
N07	VSS1899	M1156
N11	VSS1900	M1160
N15	VSS1901	M1164
N19	VSS1902	M1168
N23	VSS1903	M1172
N27	VSS1904	M1176
N31	VSS1905	M1180
N35	VSS1906	M1184
N39	VSS1907	M1188
N43	VSS1908	M1192
N47	VSS1909	M1196
N51	VSS1910	M1200
N55	VSS1911	M1204
N59	VSS1912	M1208
N63	VSS1913	M1212
N67	VSS1914	M1216
N71	VSS1915	M1220
N75	VSS1916	M1224
N79	VSS1917	M1228
N83	VSS1918	M1232
N87	VSS1919	M1236
N91	VSS1920	M1240
N95	VSS1921	M1244
N99	VSS1922	M1248
O03	VSS1923	M1252
O07	VSS1924	M1256
O11	VSS1925	M1260
O15	VSS1926	M1264
O19	VSS1927	M1268
O23	VSS1928	M1272
O27	VSS1929	M1276
O31	VSS1930	M1280
O35	VSS1931	M1284
O39	VSS1932	M1288
O43	VSS1933	M1292
O47	VSS1934	M1296
O51	VSS1935	M1300
O55	VSS1936	M1304
O59	VSS1937	M1308
O63	VSS1938	M1312
O67	VSS1939	M1316
O71	VSS1940	M1320
O75	VSS1941	M1324
O79	VSS1942	M1328
O83	VSS1943	M1332
O87	VSS1944	M1336
O91	VSS1945	M1340
O95	VSS1946	M1344
O99	VSS1947	M1348
P03	VSS1948	M1352
P07	VSS1949	M1356
P11	VSS1950	M1360
P15	VSS1951	M1364
P19	VSS1952	M1368
P23	VSS1953	M1372
P27	VSS1954	M1376
P31	VSS1955	M1380
P35	VSS1956	M1384
P39	VSS1957	M1388
P43	VSS1958	M1392
P47	VSS1959	M1396
P51	VSS1960	M1400
P55	VSS1961	M1404
P59	VSS1962	M1408
P63	VSS1963	M1412
P67	VSS1964	M1416
P71	VSS1965	M1420
P75	VSS1966	M1424
P79	VSS1967	M1428
P83	VSS1968	M1432
P87	VSS1969	M1436
P91	VSS1970	M1440
P95	VSS1971	M1444
P99	VSS1972	M1448
Q03	VSS1973	M1452
Q07	VSS1974	M1456
Q11	VSS1975	M1460
Q15	VSS1976	M1464
Q19	VSS1977	M1468
Q23	VSS1978	M1472
Q27	VSS1979	M1476
Q31	VSS1980	M1480
Q35	VSS1981	M1484
Q39	VSS1982	M1488
Q43	VSS1983	M1492
Q47	VSS1984	M1496
Q51	VSS1985	M1500
Q55	VSS1986	M1504
Q59	VSS1987	M1508
Q63	VSS1988	M1512
Q67	VSS1989	M1516
Q71	VSS1990	M1520
Q75	VSS1991	M1524
Q79	VSS1992	M1528
Q83	VSS1993	M1532
Q87	VSS1994	M1536
Q91	VSS1995	M1540
Q95	VSS1996	M1544
Q99	VSS1997	M1548
R03	VSS1998	M1552
R07	VSS1999	M1556
R11	VSS2000	M1560
R15	VSS2001	M1564
R19	VSS2002	M1568
R23	VSS2003	M1572
R27	VSS2004	M1576
R31	VSS2005	M1580
R35	VSS2	







	Mount	NC
Samsung 1GB K4W2G1646B-HC12 P/N: 13-K4W2G16-3000	R432 (0), R105 (0) R433 (0), R94 (1)	R430 (1), R104 (1) R431 (1), R95 (0)
Hynix 1GB H5TQ2G63BFR-12C P/N: 13-H5T02G6-3000	R432 (0), R105 (0) R433 (0), R95 (0)	R430 (1), R104 (1) R431 (1), R94 (1)



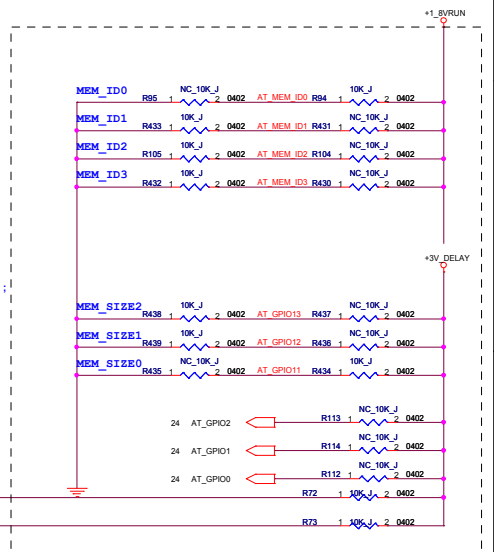
Strap for DDR3  
ATL\_DVPPDATA[1:0 :21:20]  
0000 128Mx16 Hynix 1GB  
0001 128Mx16 Samsung 1GB

If no ROM attached, GPIO[13:12:11] ;  
CONFIG(2:0)  
controls the memory aperture size.  
64MB 010  
128MB 000  
256MB 001  
512MB 001

HSYNC , VSYNC  
AUD[1] , AUD[0]  
0,0 No audio function  
0,1 Audio for DisplayPort and HDMI if dongle is detected  
1,0 Audio for DisplayPort only  
1,1 Audio for both DisplayPort and HDMI

24 AT\_MEM\_ID0 AT\_MEM\_ID0  
24 AT\_MEM\_ID1 AT\_MEM\_ID1  
24 AT\_MEM\_ID2 AT\_MEM\_ID2  
24 AT\_MEM\_ID3 AT\_MEM\_ID3

24 AT\_GPIO11 AT\_GPIO11  
24 AT\_GPIO12 AT\_GPIO12  
24 AT\_GPIO13 AT\_GPIO13



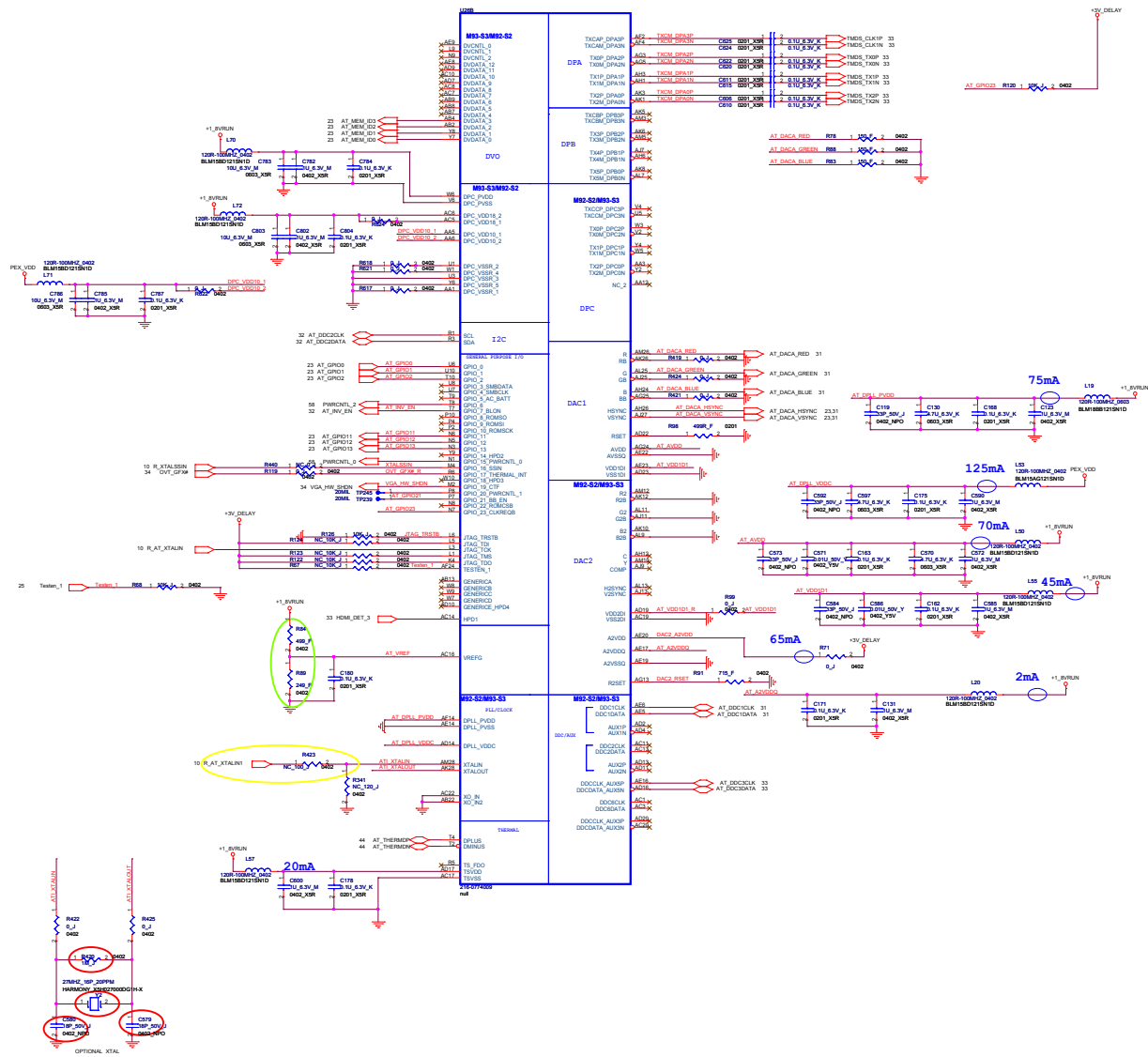
GPIO 0 : PCIE FULL TX OUTPUT SWING  
GPIO 1 : PCIE TRANSMITTER DE-EMPHASIS ENABLED  
GPIO 2 : PCIE GEN2 ENABLED

**FOXCONN**

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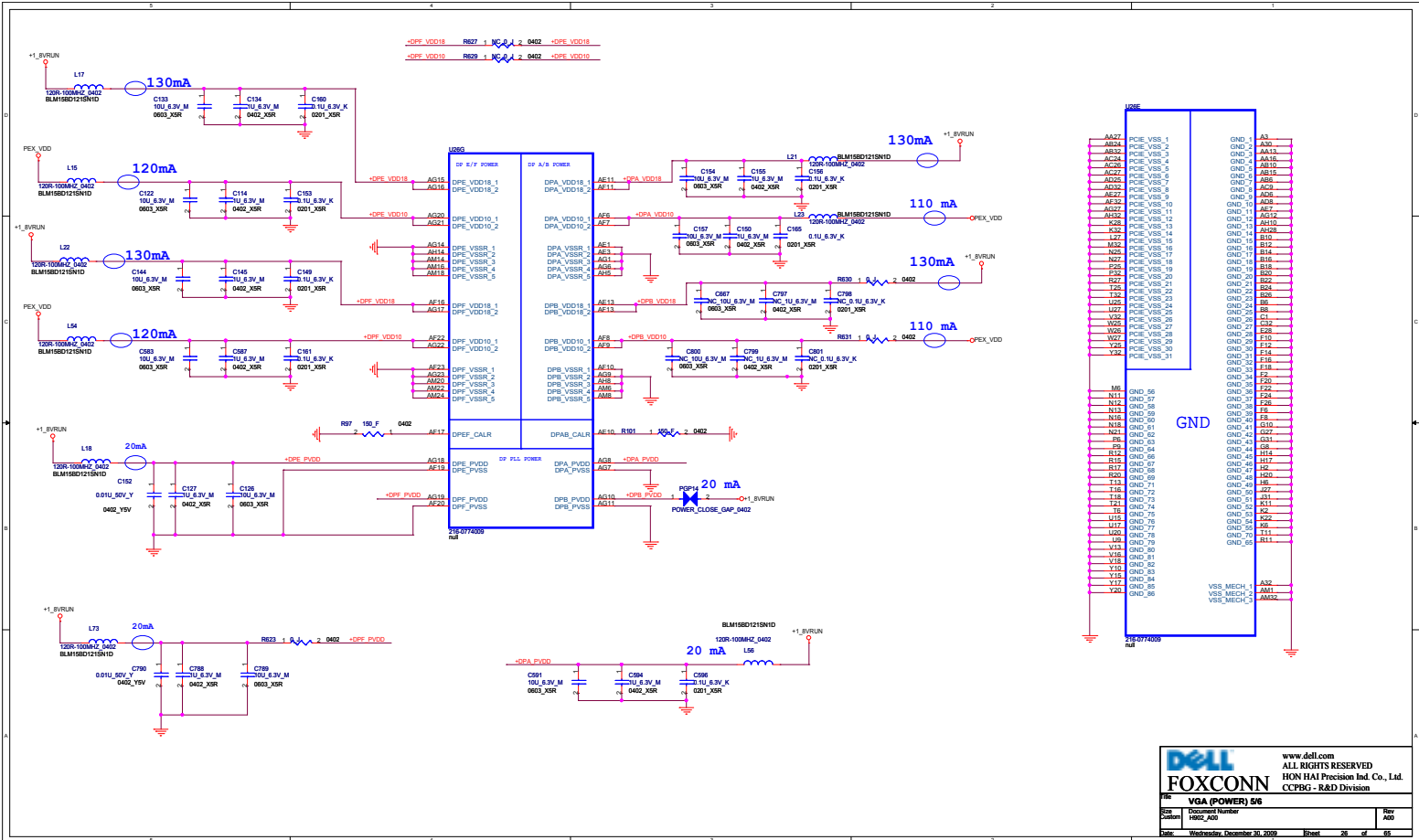
Title <b>VGA (STRAP) 2/6</b>	
Size A3	Document Number H802_A00
Date Wednesday, December 30, 2009	Sheet 23 of 95

Place to connect two ground for EMI recommend.

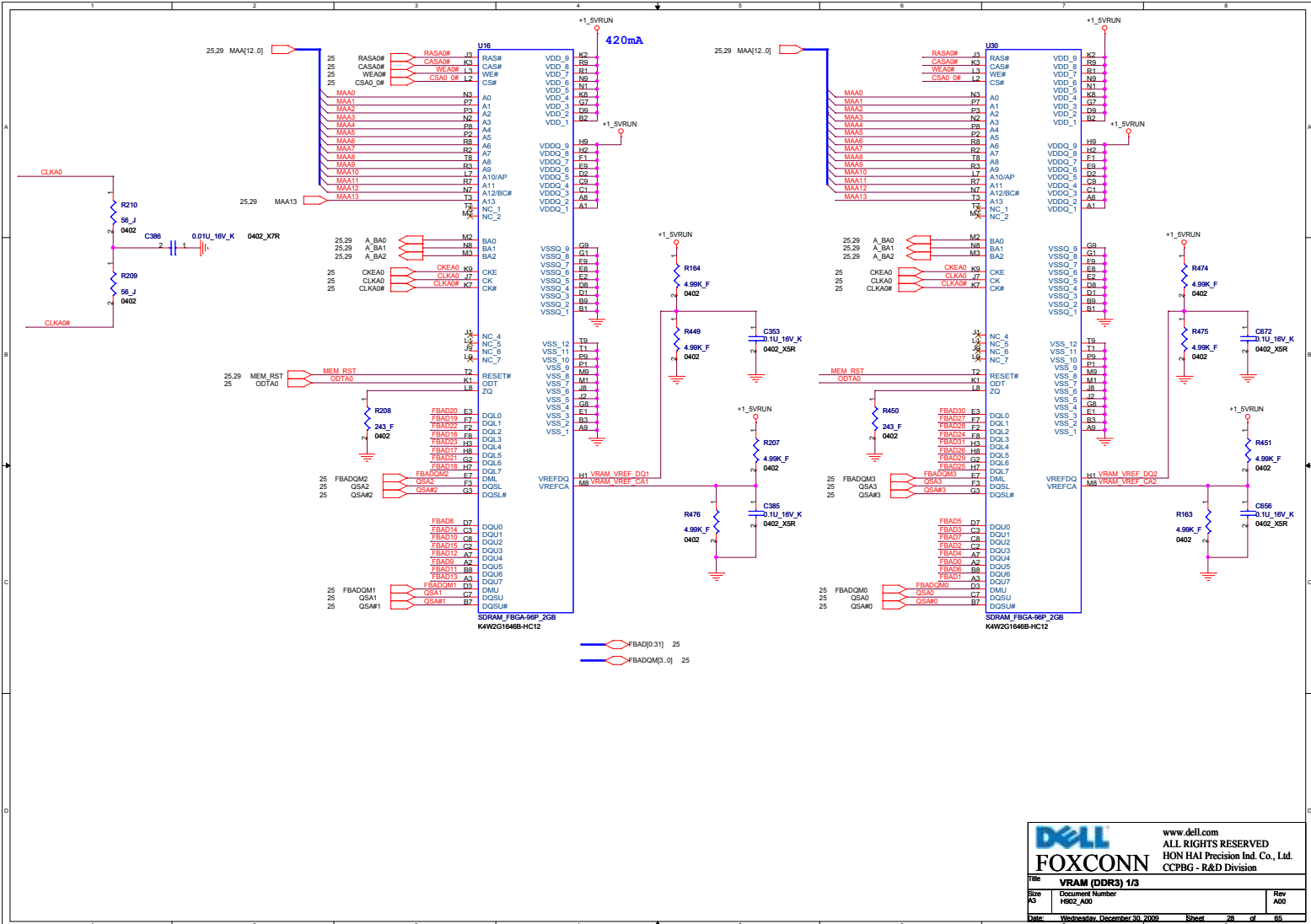


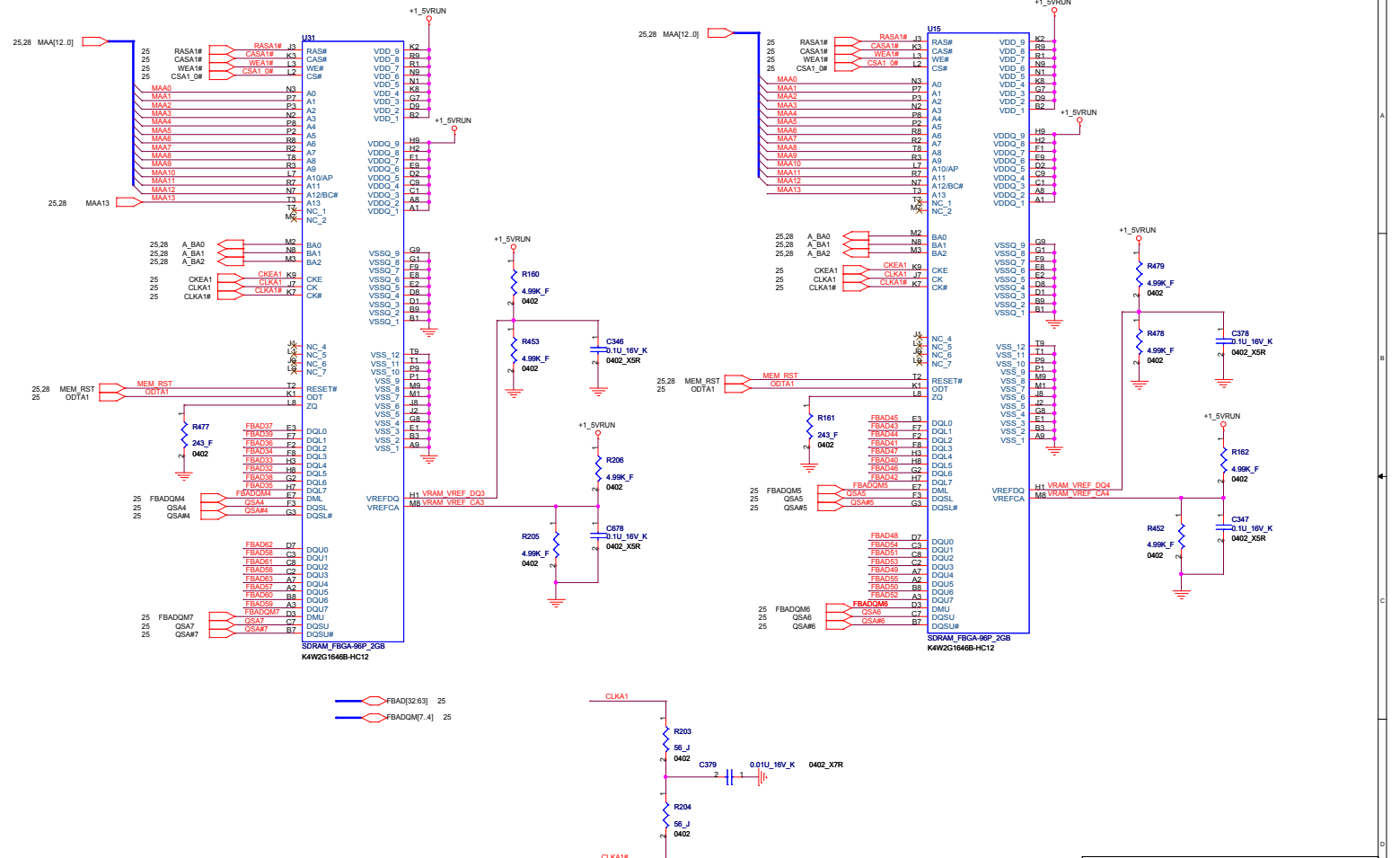










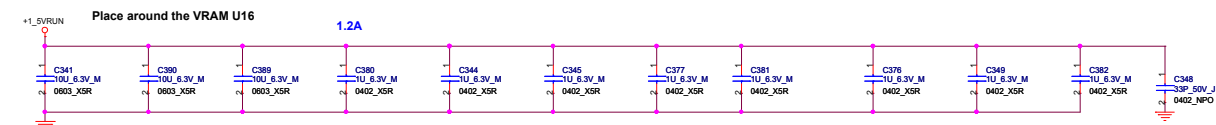
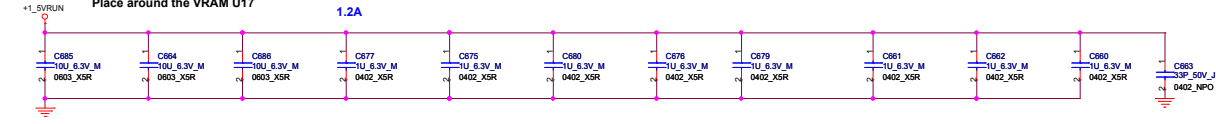
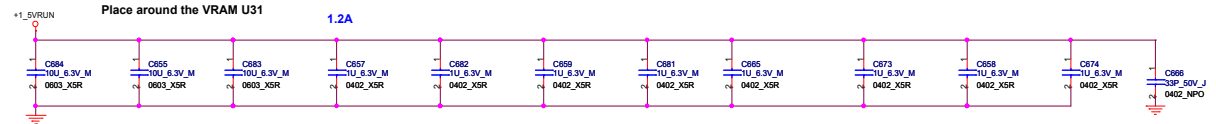
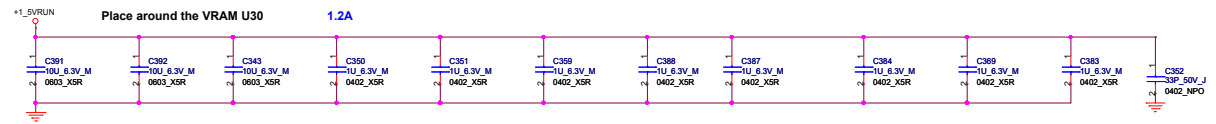








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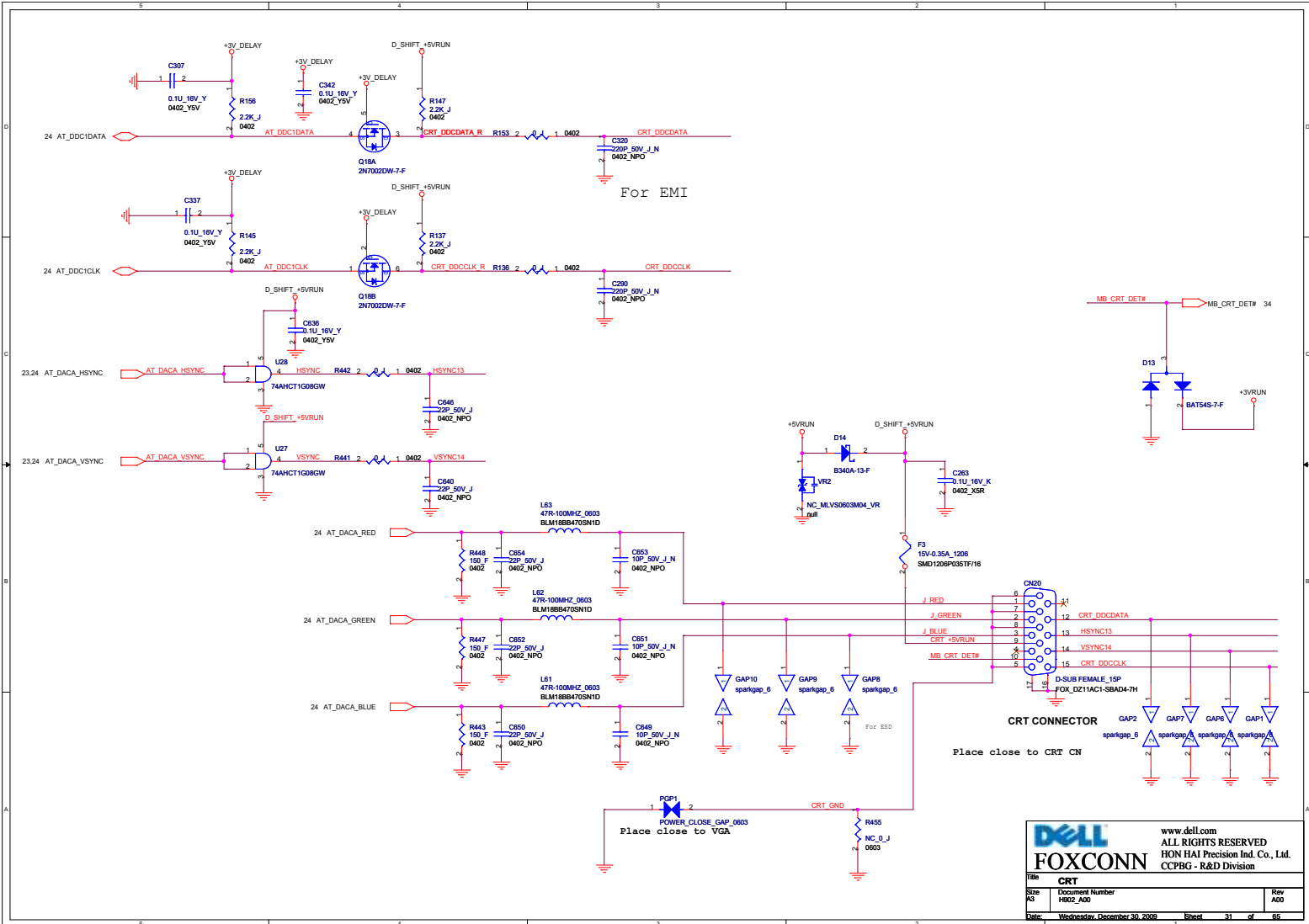
Title		
VRAM (DDR3) 2/3		
Size	Document Number	Rev
A3	H802_A00	A00
Date	Wednesday, December 30, 2009	Sheet 28 of 85

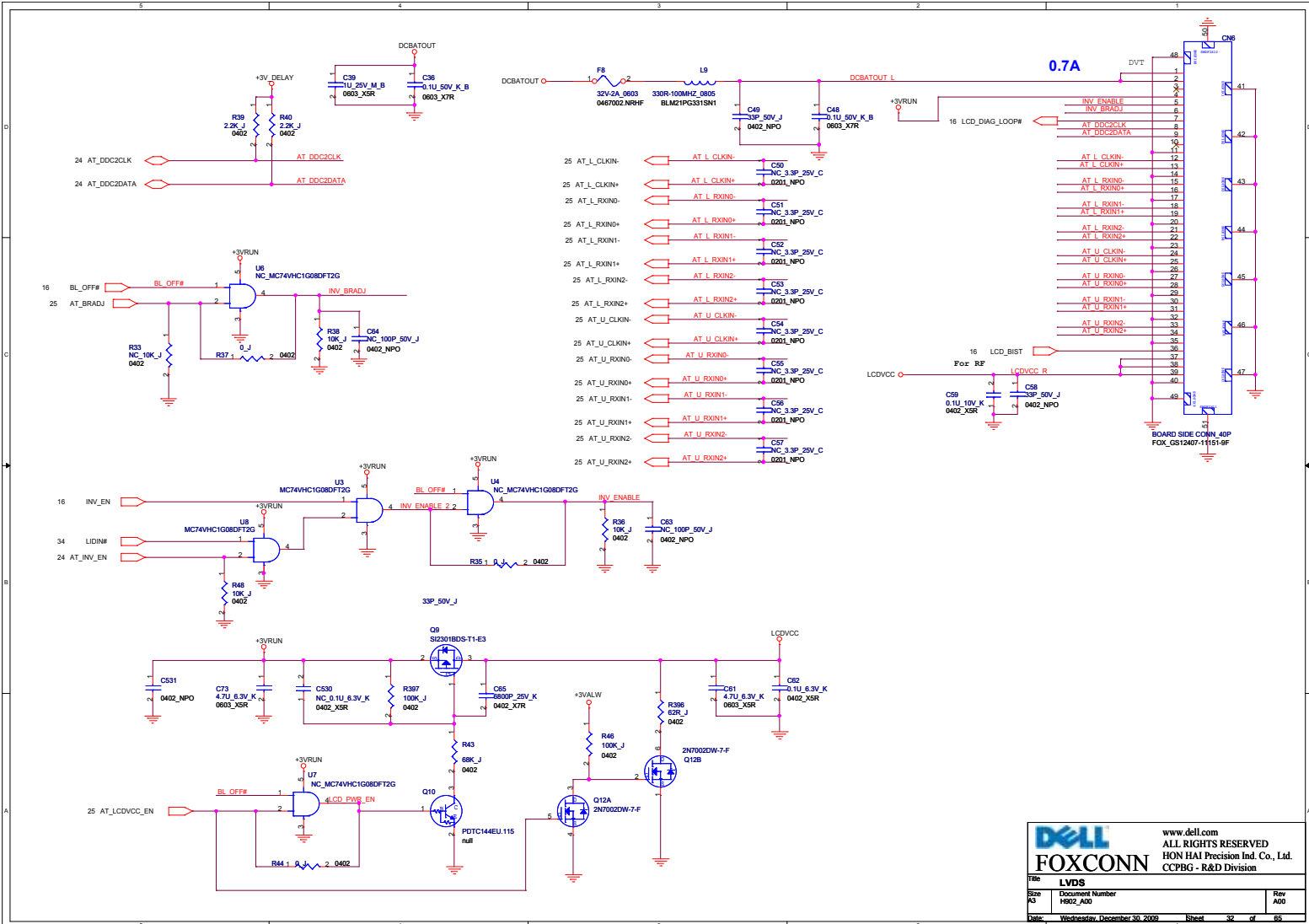




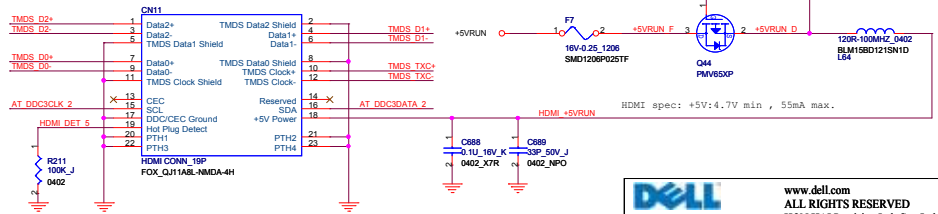
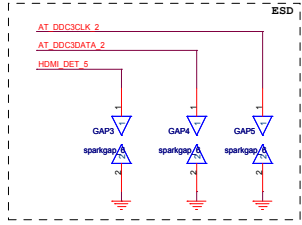
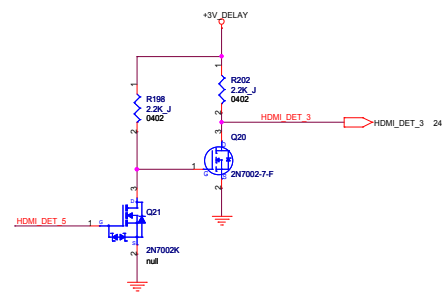
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Title <b>VRAM (BYPASS) 3/3</b>		
Size A3	Document Number H802_A00	Rev A00
Date: Wednesday, December 30, 2009		Sheet 30 of 95

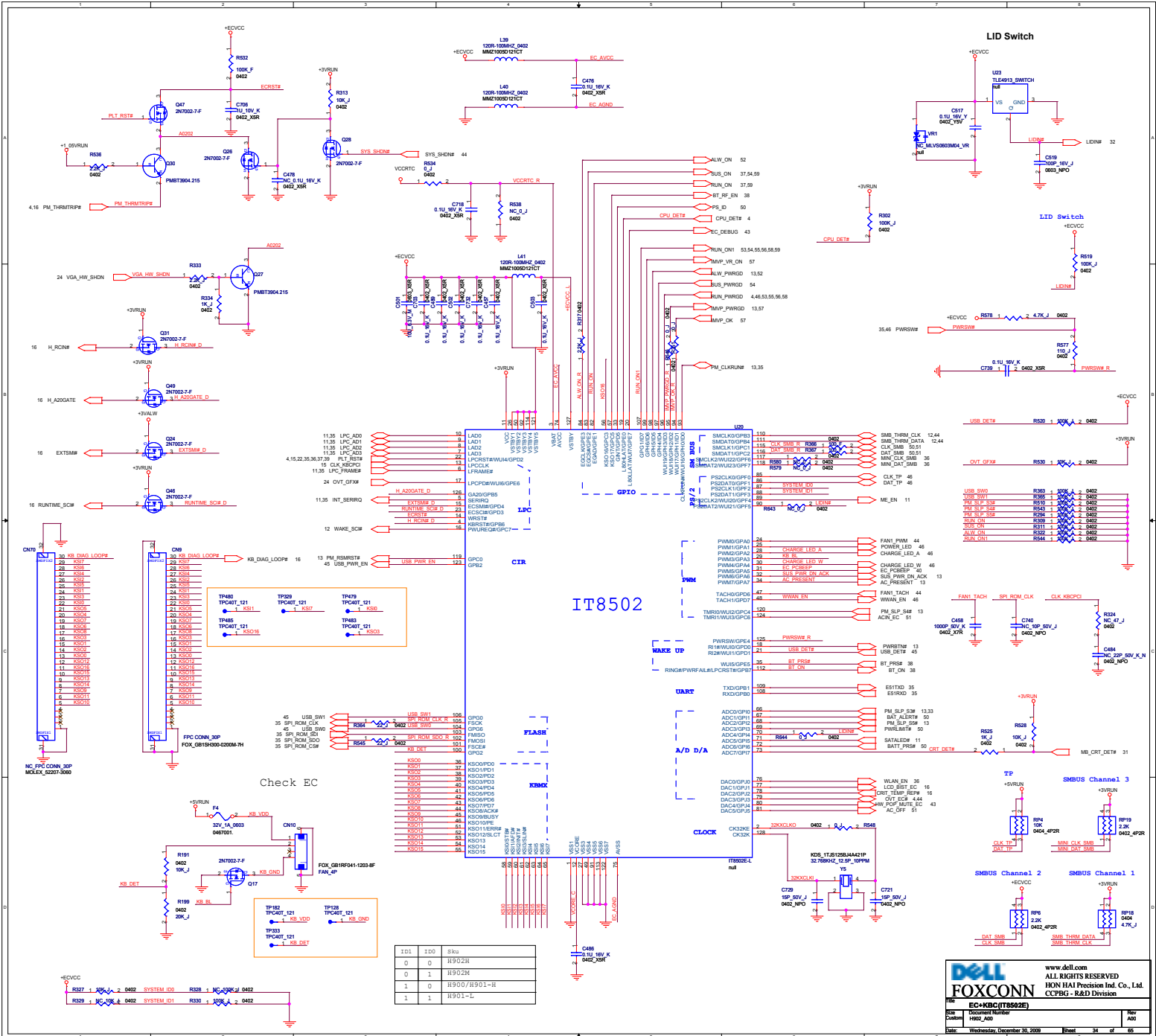


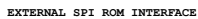
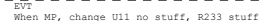




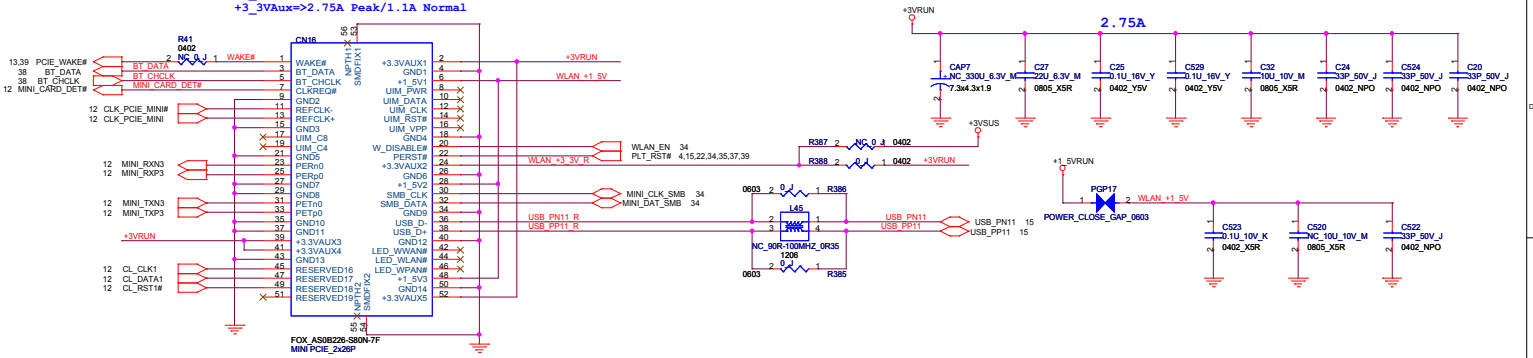


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<b>FOXCONN</b>			
<b>Title</b> <b>HDMI</b>			
<b>Size</b> <b>A3</b>	<b>Document Number</b> <b>H902_A00</b>	<b>Rev</b> <b>A00</b>	
<b>Date:</b> <b>Wednesday, December 30, 2009</b>		<b>Sheet</b> <b>33</b>	<b>of</b> <b>65</b>

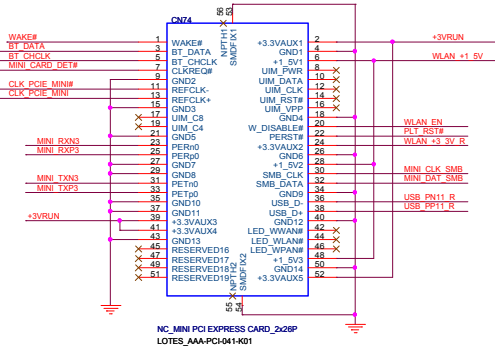




+1.5V=>0.5A Peak/0.375A Normal  
+3.3Vaux=>2.75A Peak/1.1A Normal



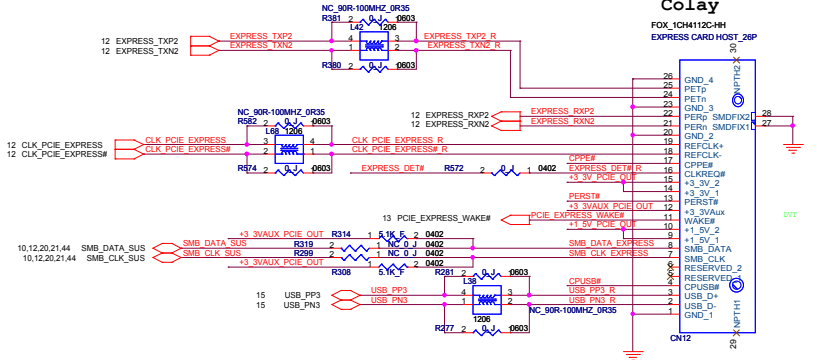
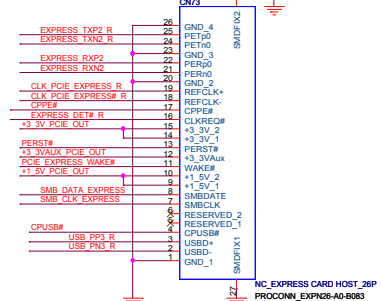
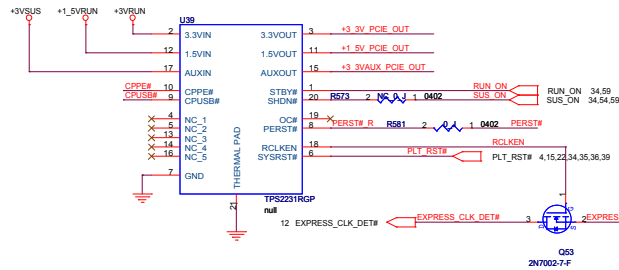
Half Mini Card for WLAN or WiMAX



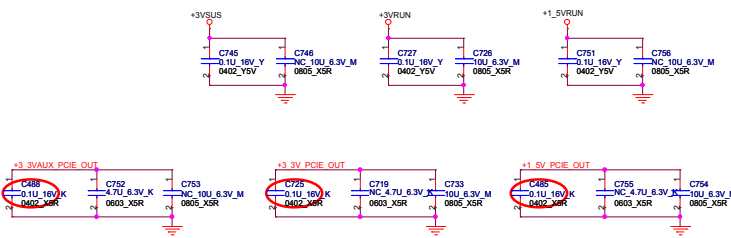
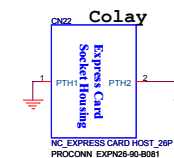
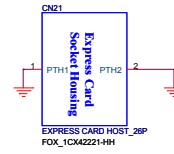
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<b>FOXCONN</b>		ALL RIGHTS RESERVED	
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		CCPBG - R&D Division	
Title: WLAN/Wimax Mini-PCIE Card			
Size: A3	Document Number: H802_A00	Rev: A00	
Date: Wednesday, December 30, 2009 Sheet: 38 of 95			

+1\_5V=>650mA  
+3\_3VAux=>275mA  
+3\_3V=>1.3A

# Express Card Power Switch



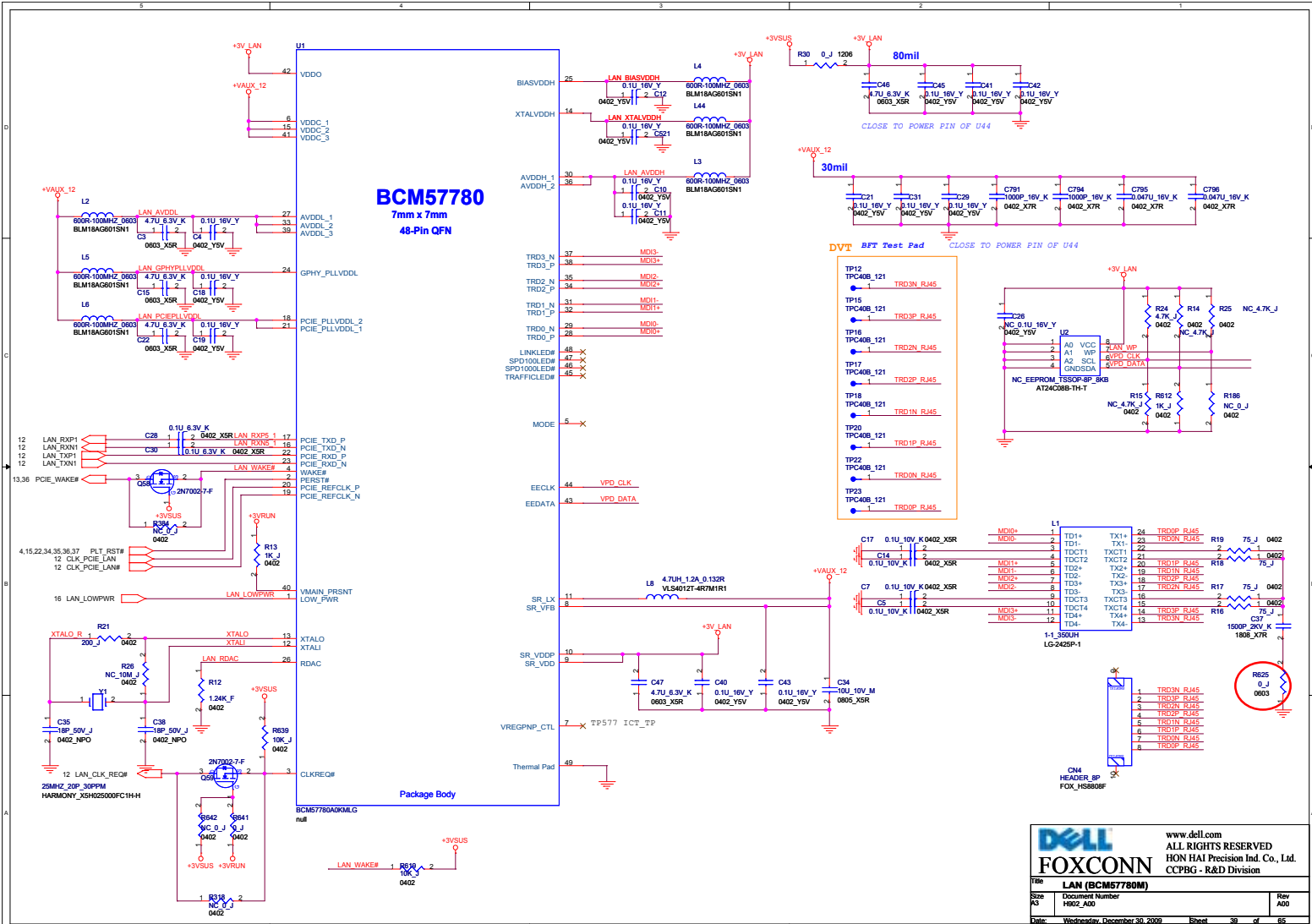
## Express Card Slot.

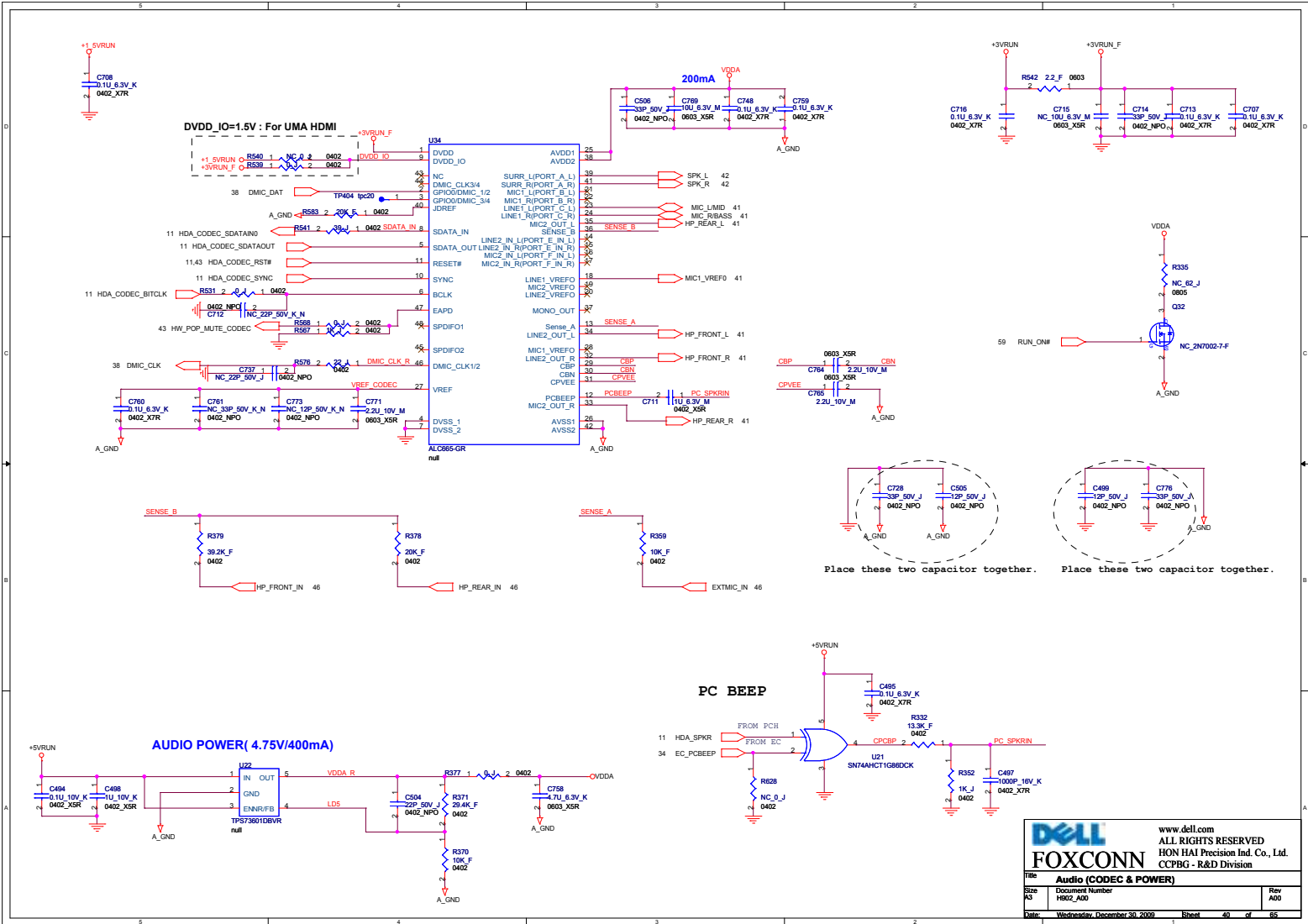


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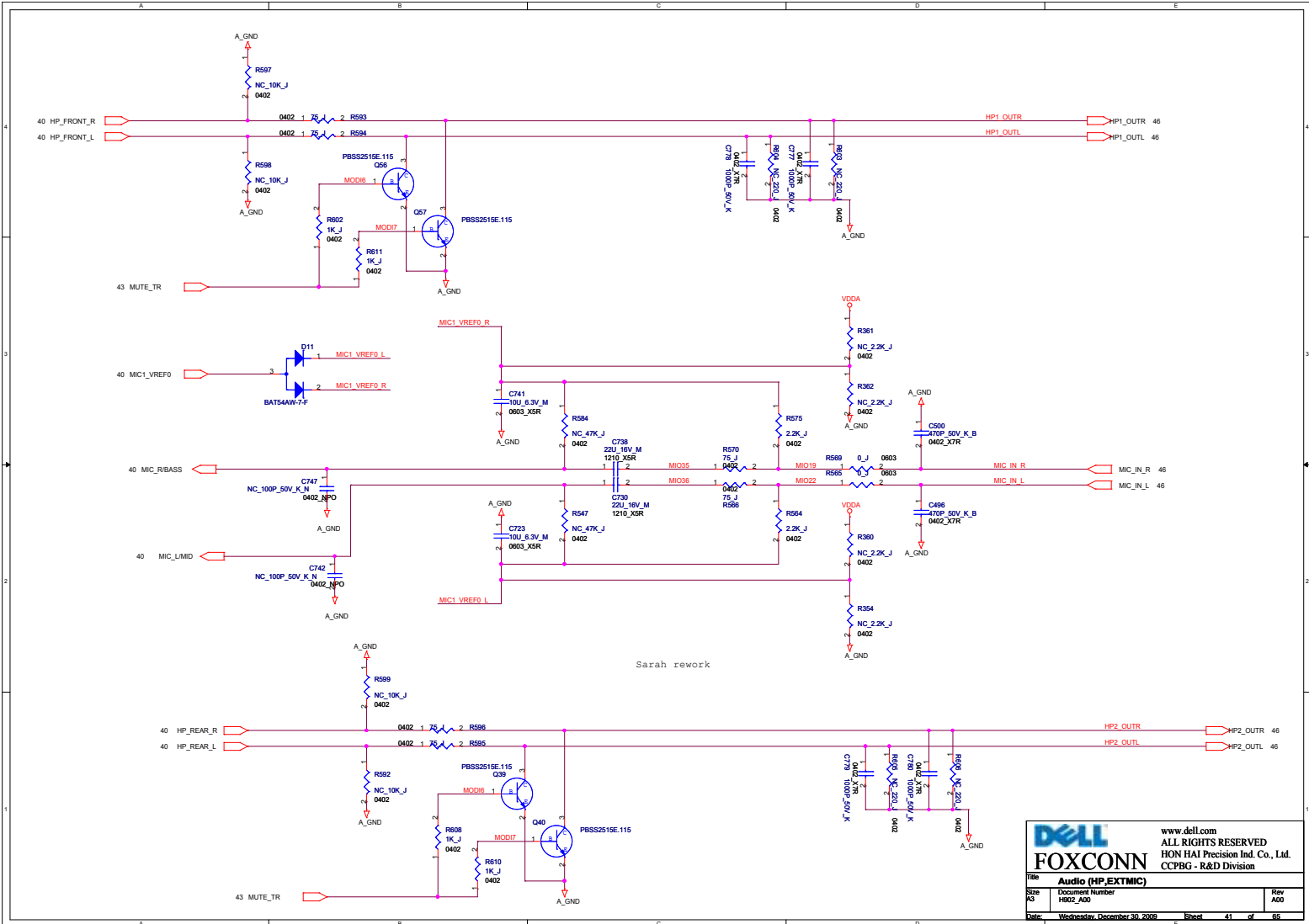
Express card		
Rev	Document Number	Rev
A3	H002_A00	A00
Date:	Wednesday, December 30, 2009	Sheet 37 of 85



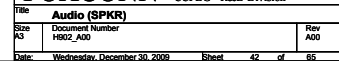
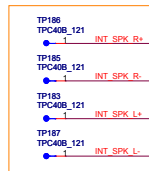
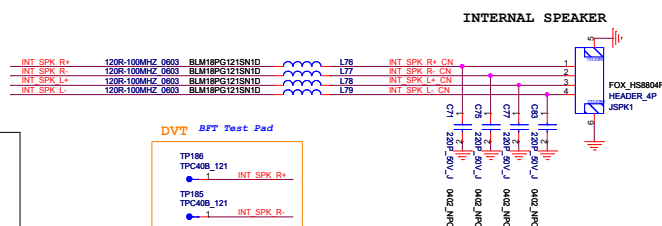
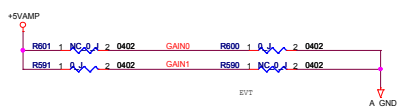
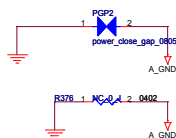


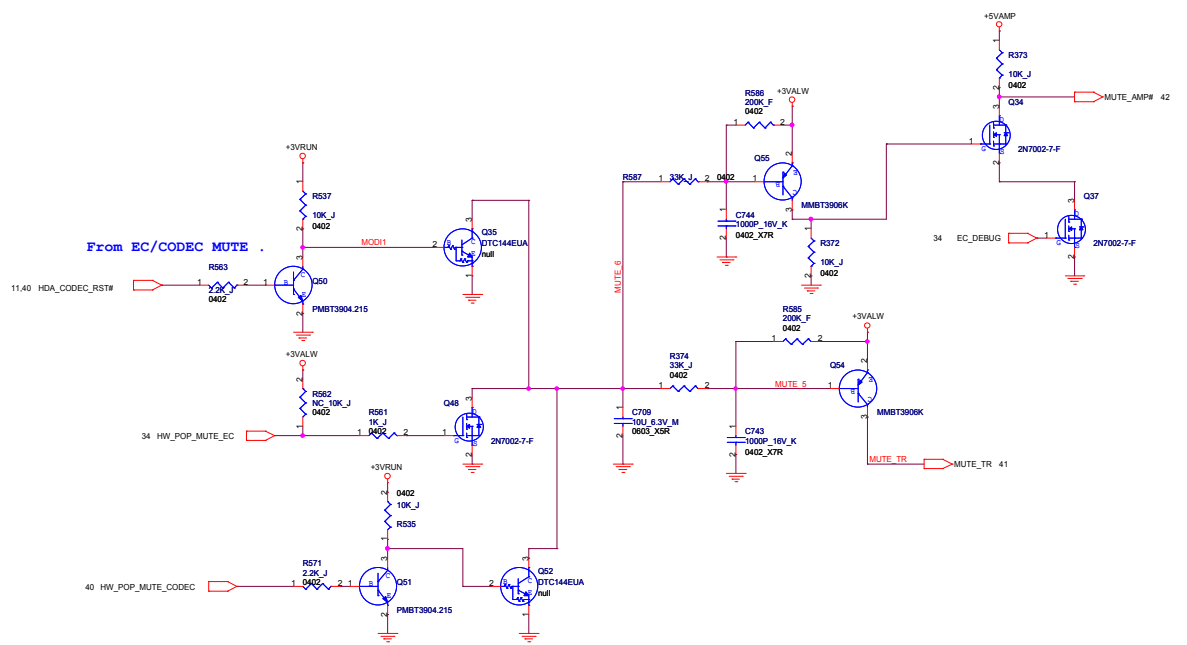





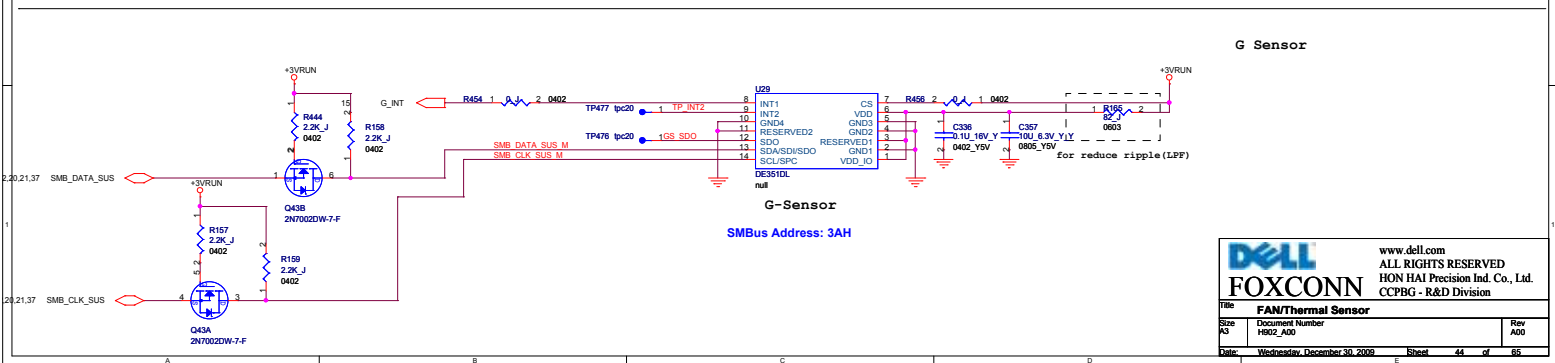
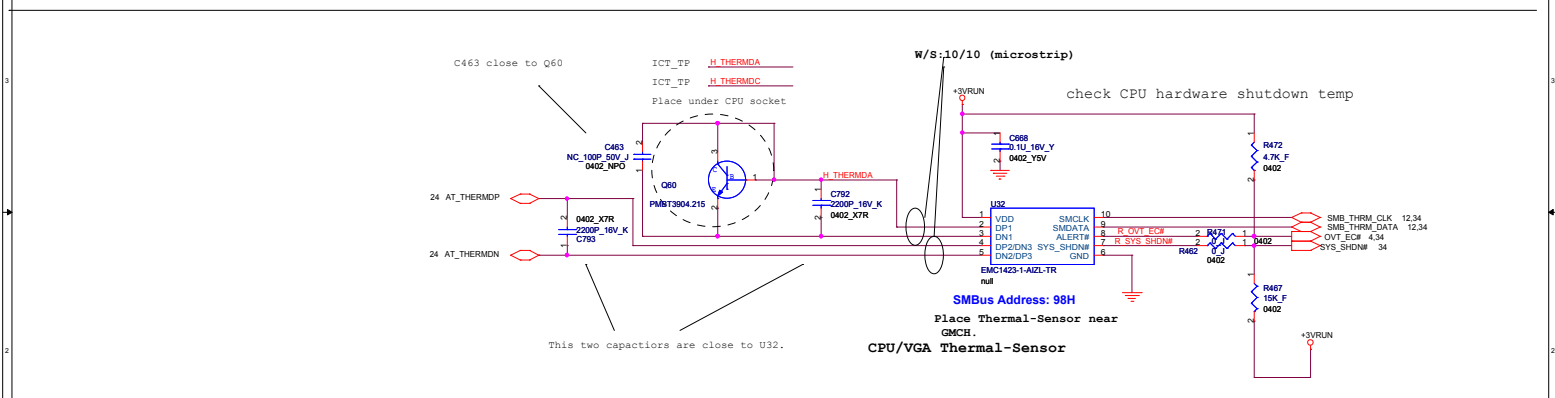
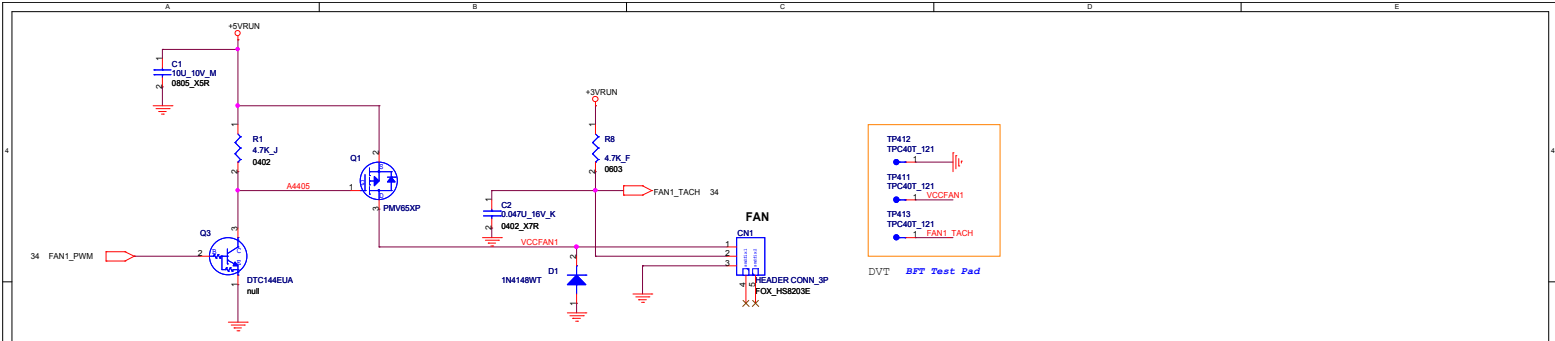



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Title: Audio (HP_EXTMIC)		
Size: A3	Document Number: H802_A00	Rev: A00
Date: Wednesday, December 30, 2009 Sheet: 41 of 95		

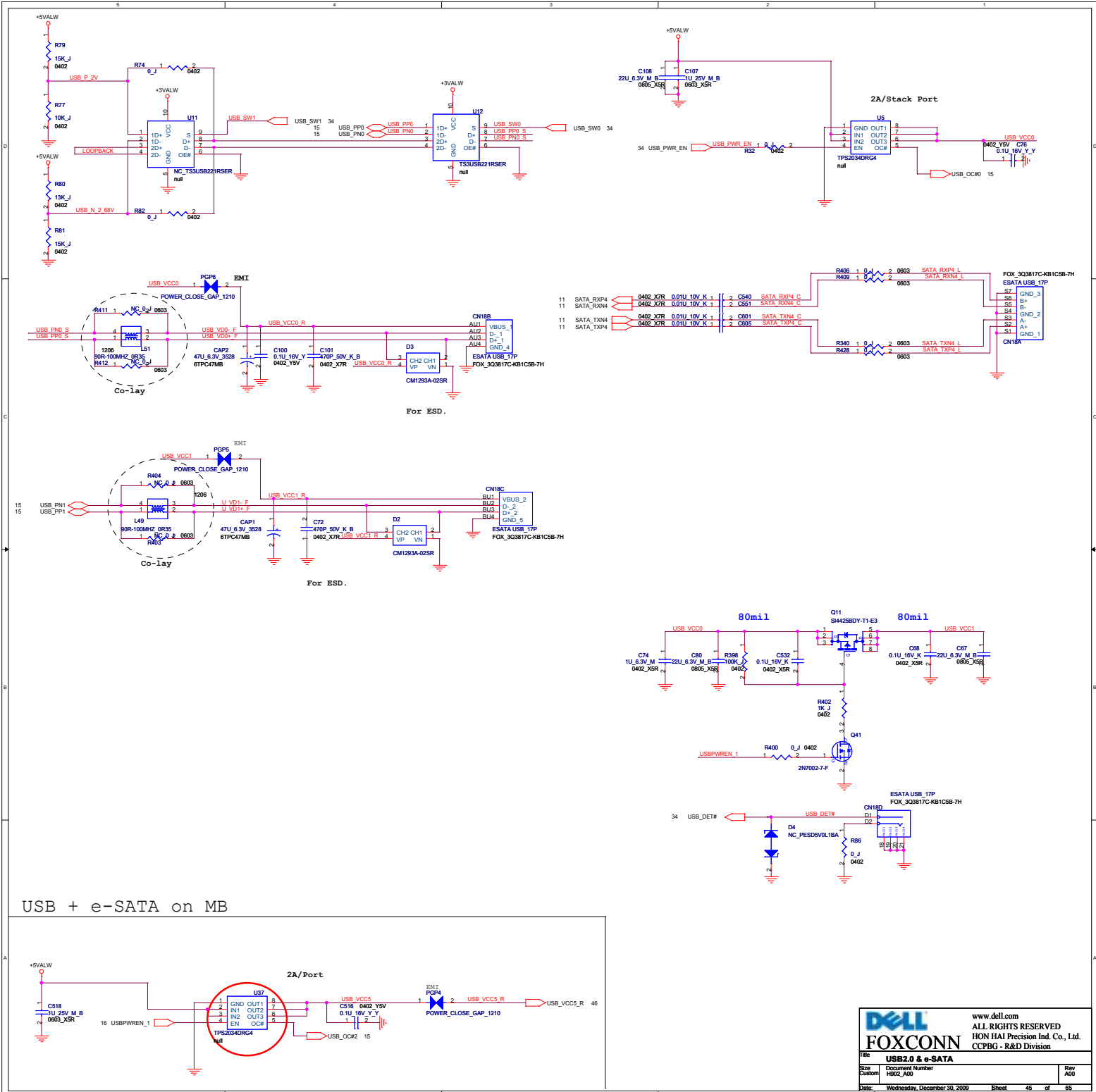


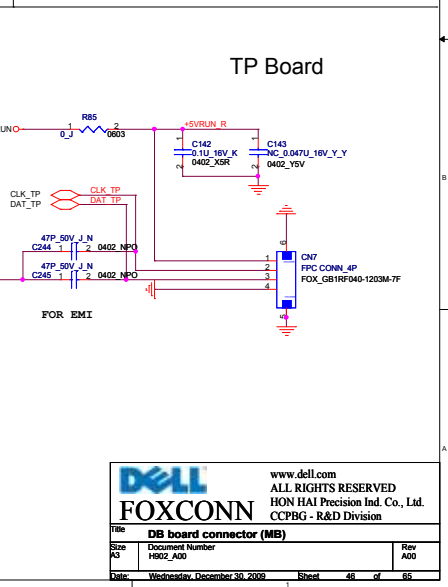
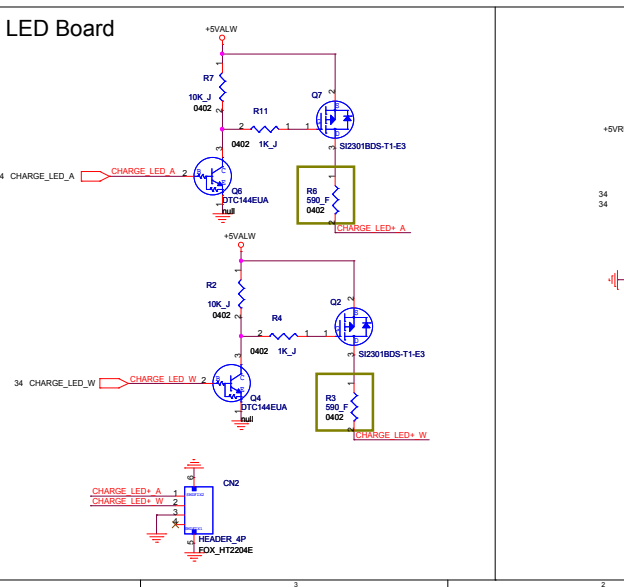
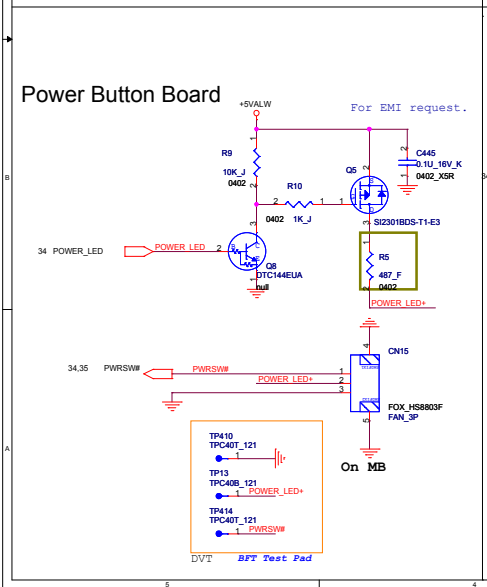
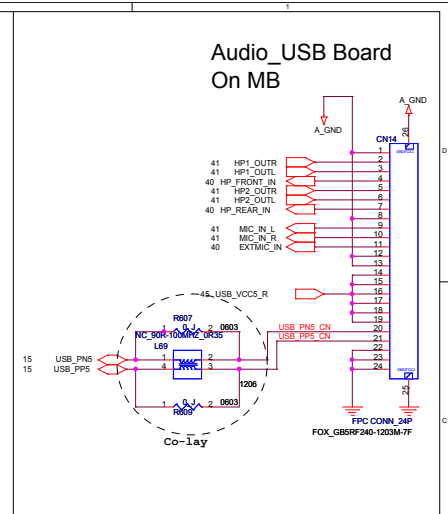
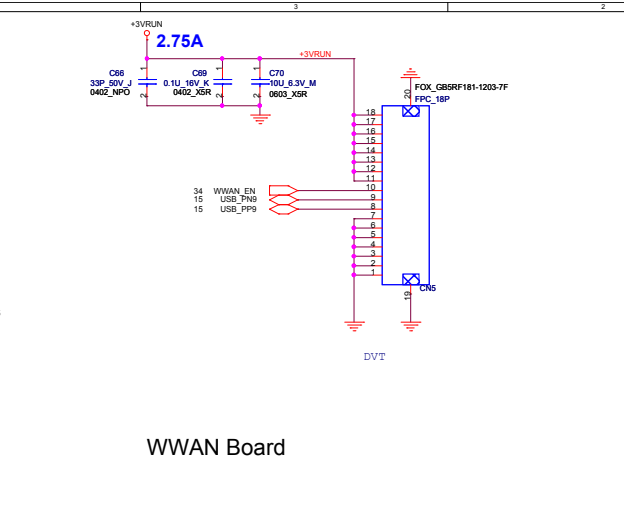
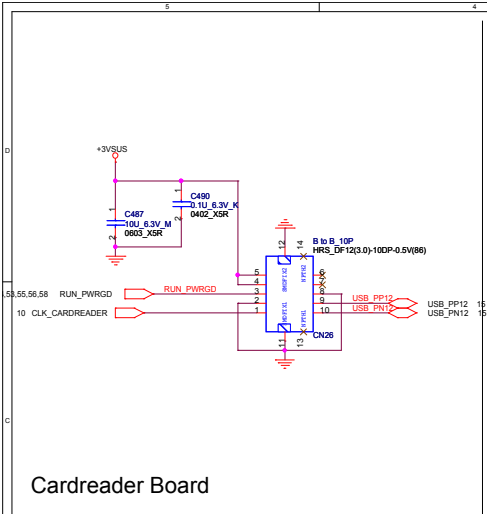



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Title: <b>Audio (MUTE)</b>			
Size: A3	Document Number H802_A00	Rev A00	
Date: Wednesday, December 30, 2009	Sheet: 43	of 95	



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Title	<b>FAN/Thermal Sensor</b>		
Size	Document Number	Rev	
A3	H802_A00	A00	
Date:	Wednesday, December 30, 2009	Sheet	44 of 95

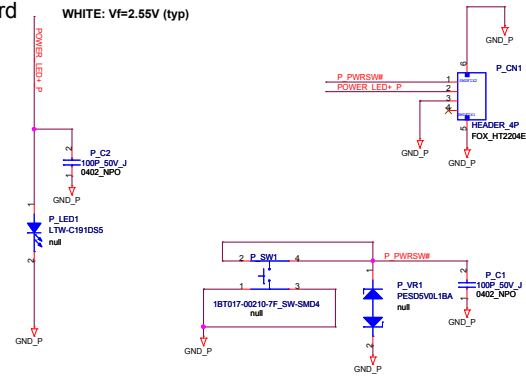




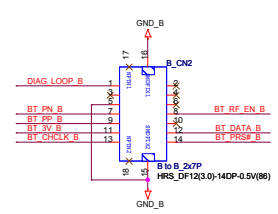
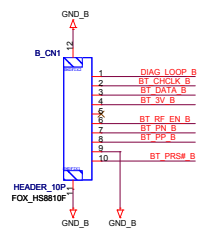
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<b>FOXCONN</b>		ALL RIGHTS RESERVED	
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		CCPBG - R & D Division	
Title	<b>DB board connector (MB)</b>		
Size	Document Number	Rev	
A3	H802_A00	A00	
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Power Button Board

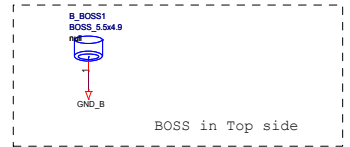
WHITE: Vf=2.55V (typ)



POWER BUTTON



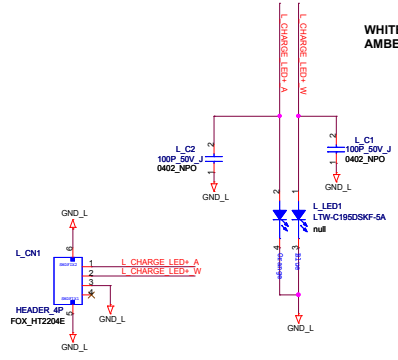
Bluetooth CONN.




Bluetooth Board

LED Board

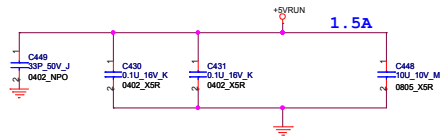
WHITE: Vf=2.55V (typ)  
AMBER: Vf=2.0V (typ)



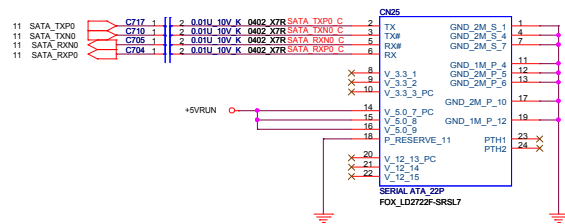


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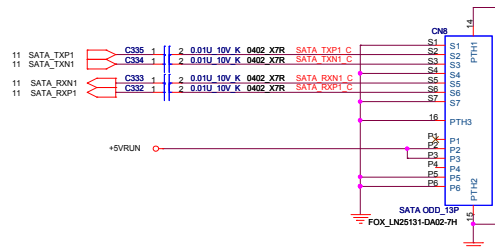
Title: PWR_BTN&LED&BT DB		
Size: A3	Document Number: H802_A00	Rev: A00
Date: Wednesday, December 30, 2009 Sheet 47 of 95		



## SATA HDD CONN

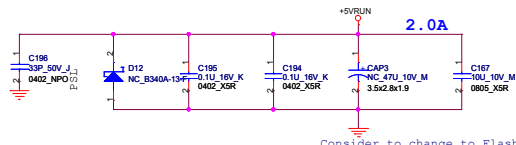


## SATA ODD CONN



## ODD CON ADAPTER

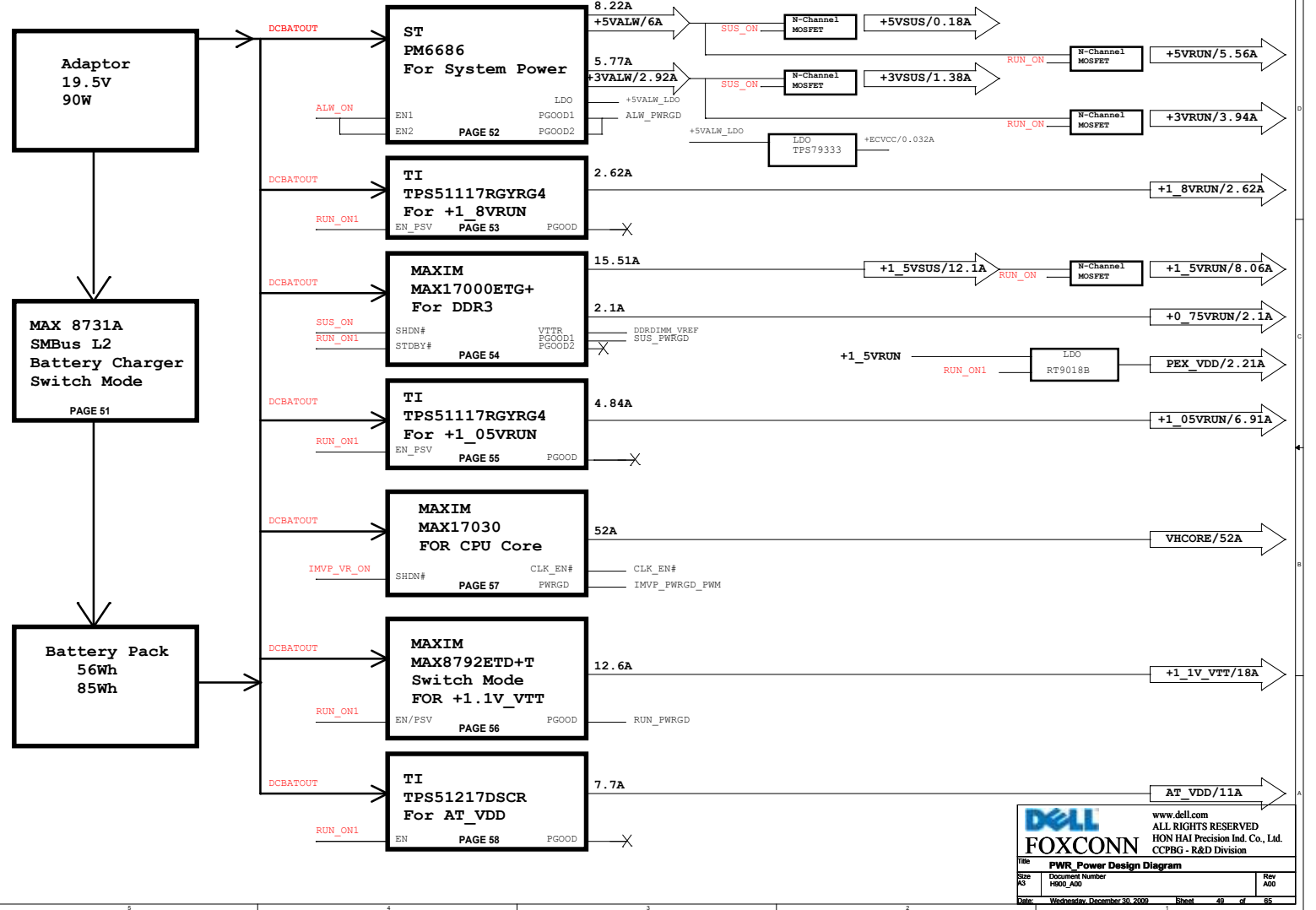
Add CN68 need 2N-0013009-FKG0 in BOM



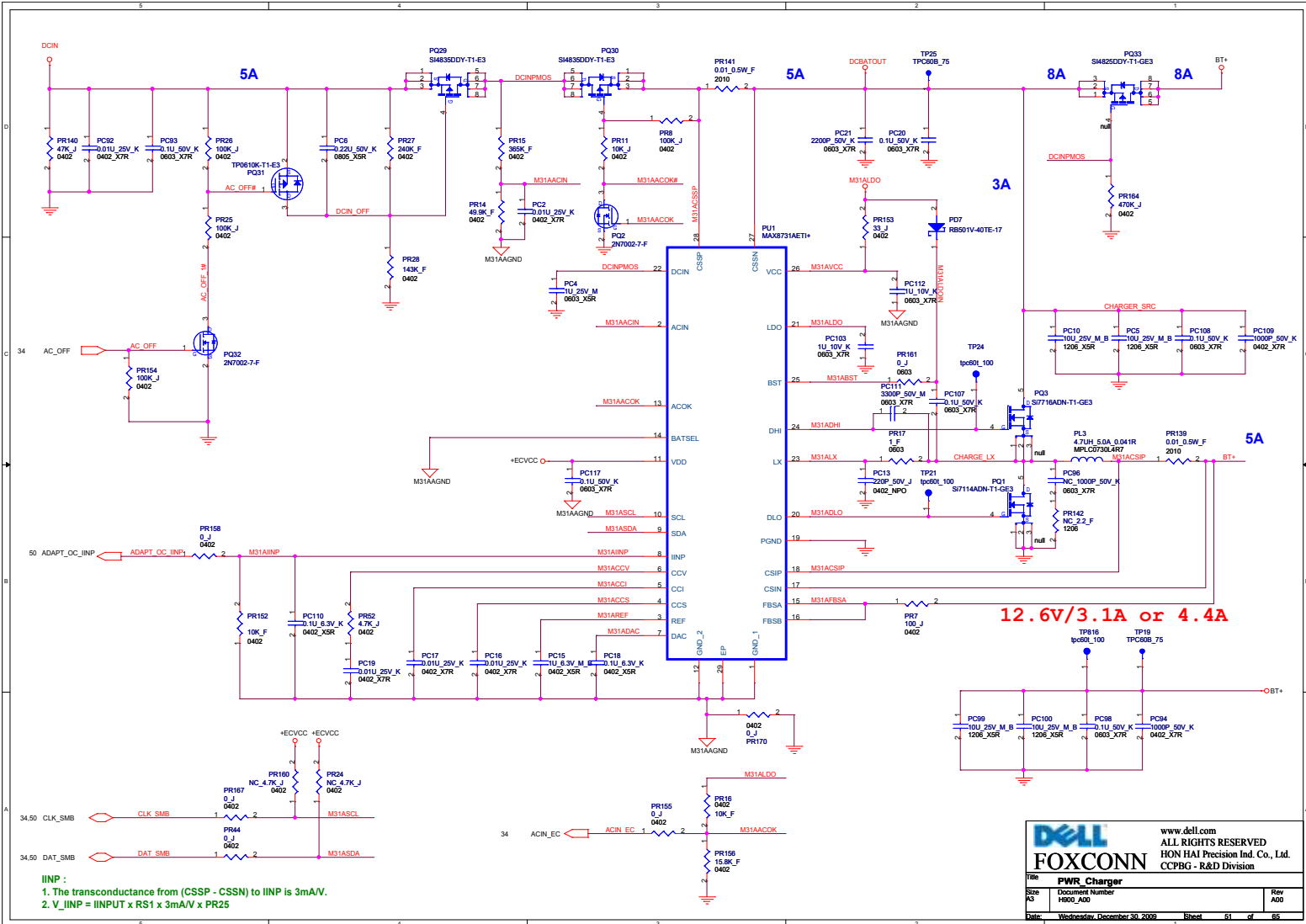
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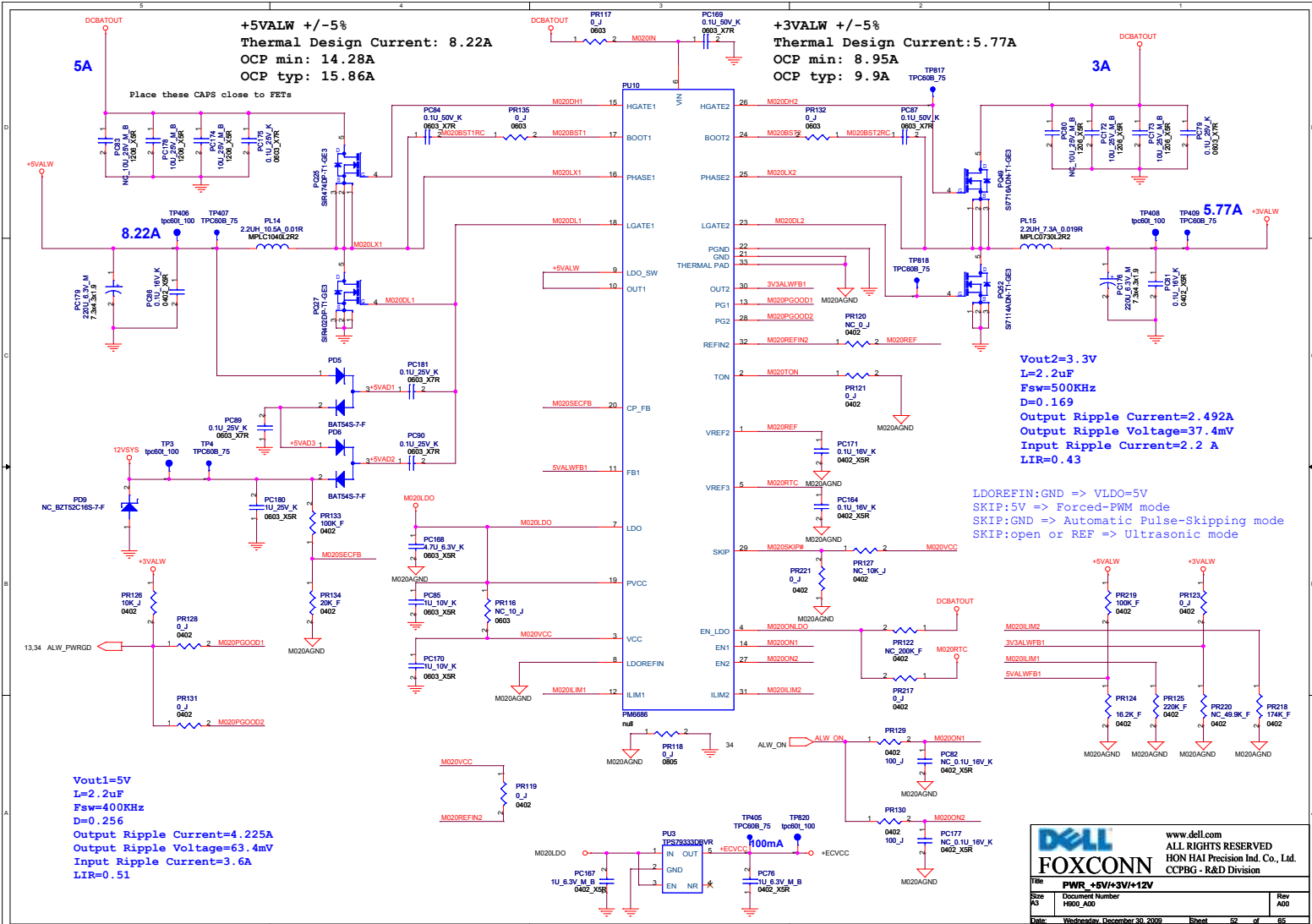
Title SATA HDD/ODD		
Size A3	Document Number H802_A00	Rev A00
Date Wednesday, December 30, 2009	Sheet 48	of 95

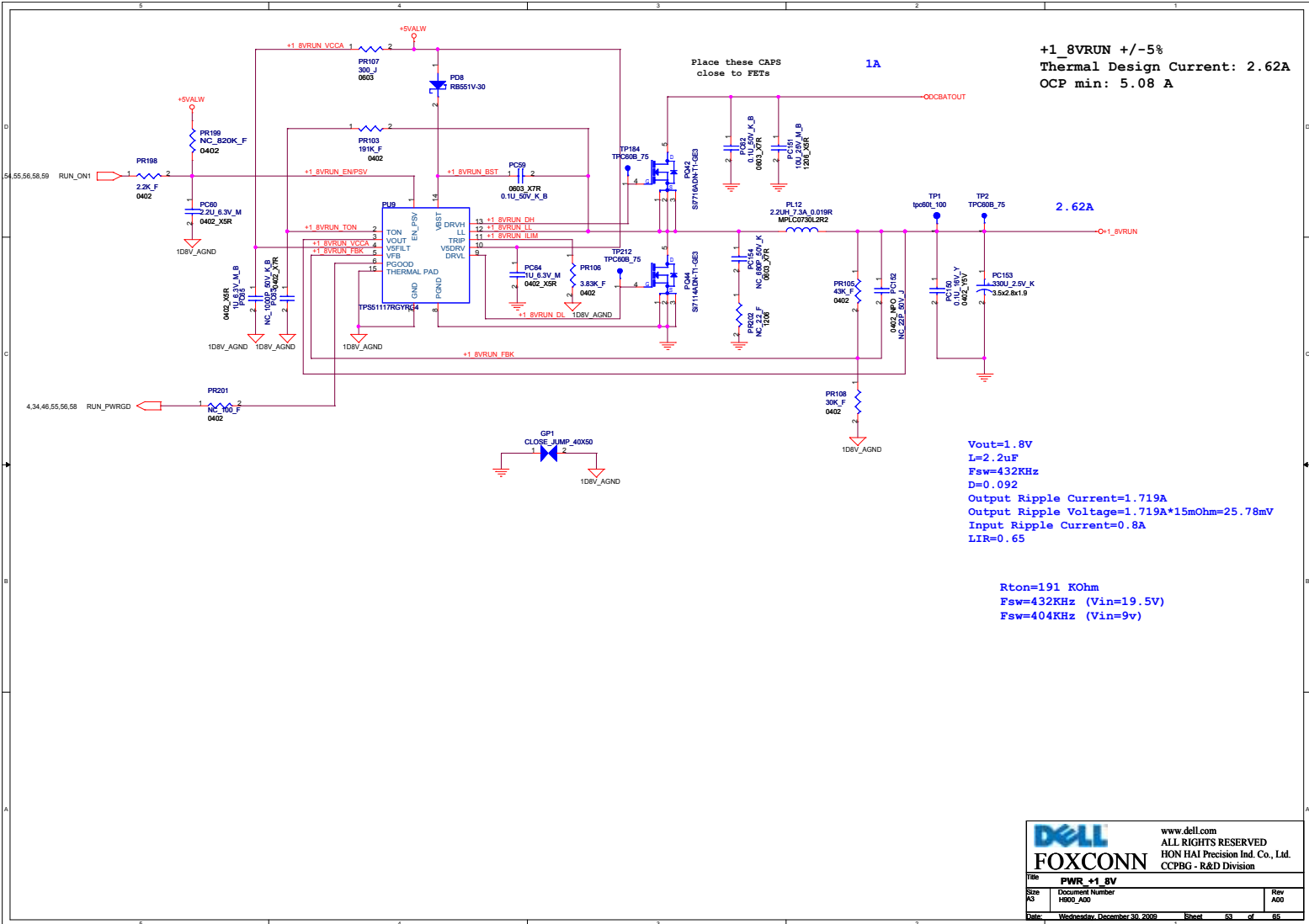




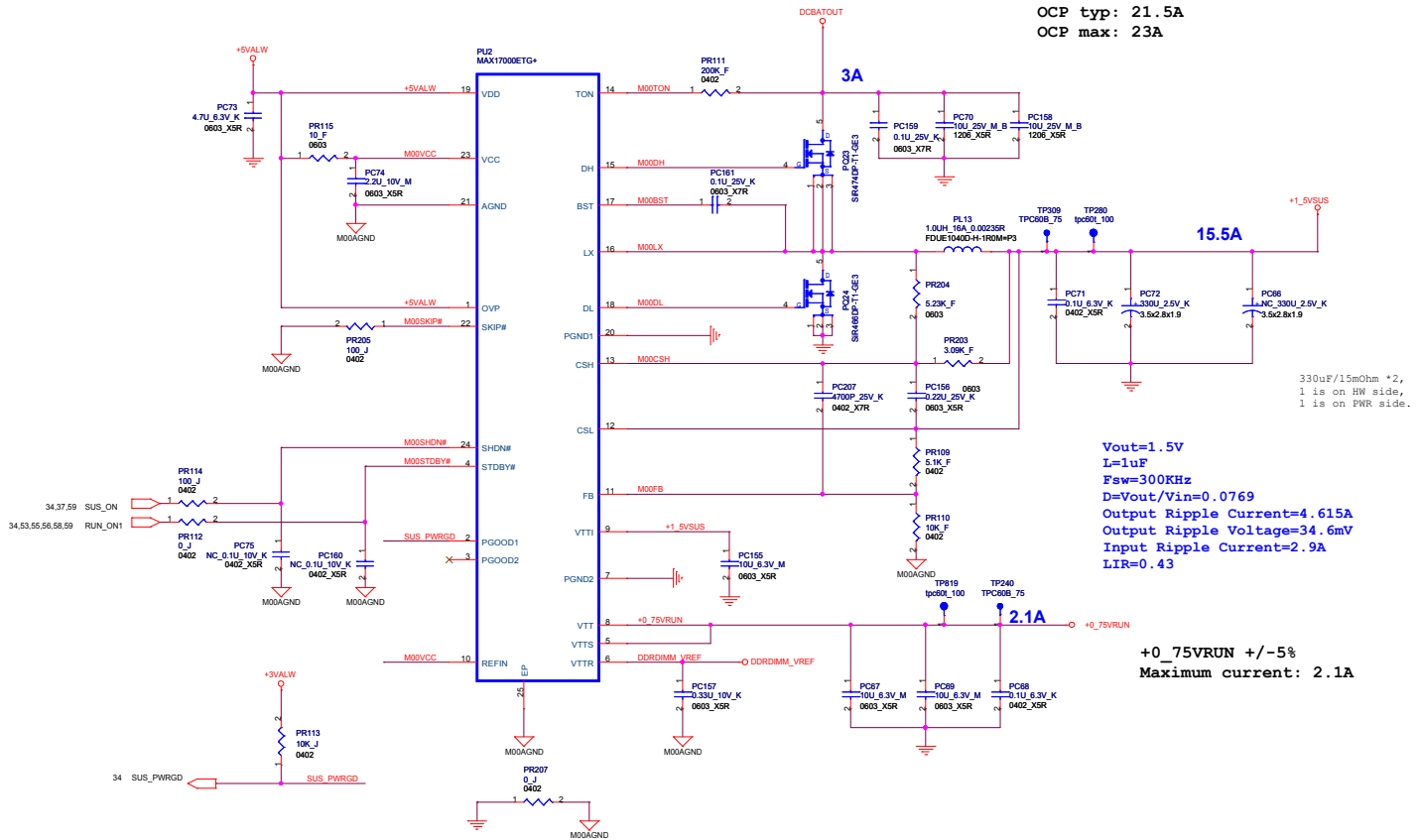






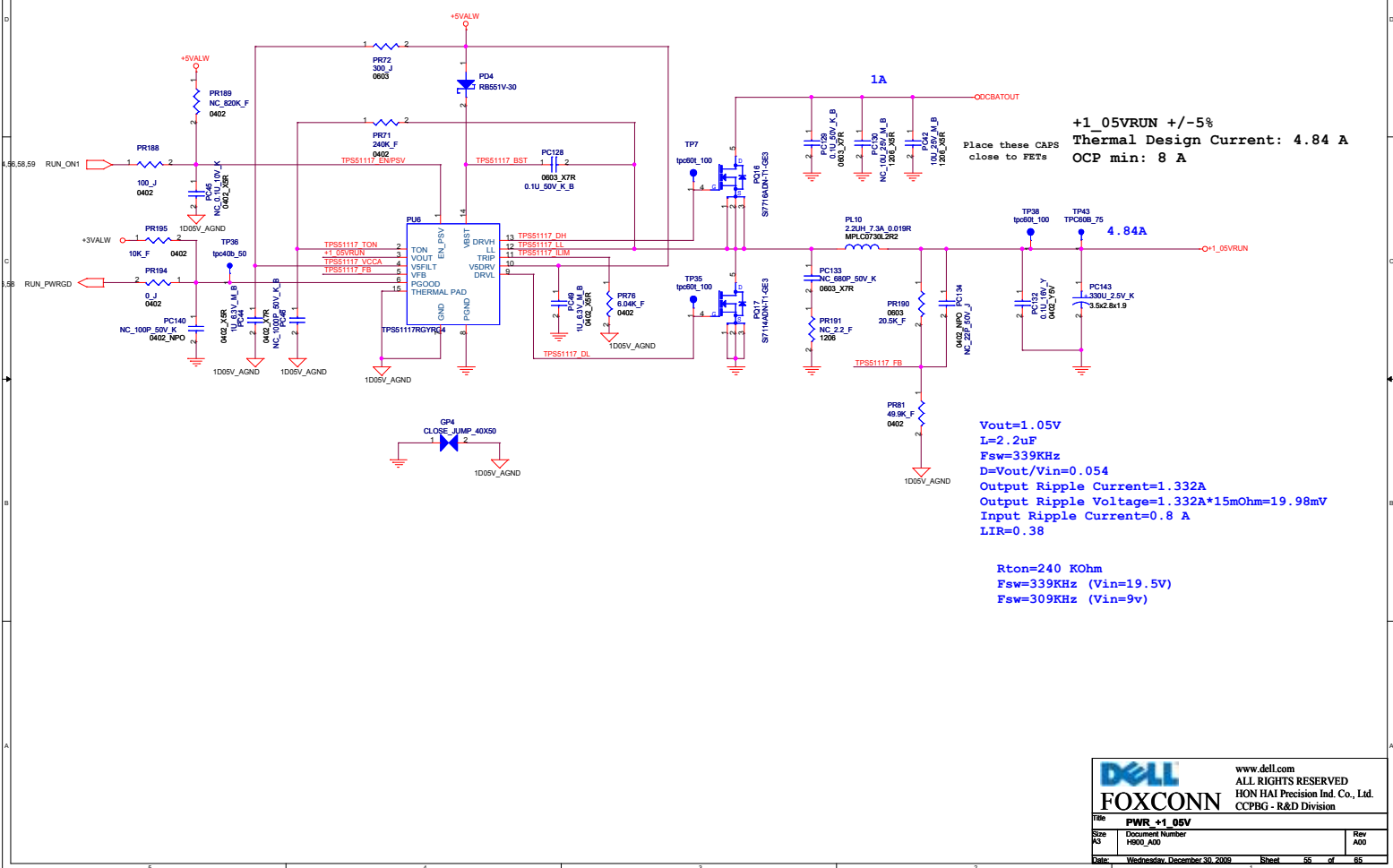


```
+1_5VSUS +/-5%
Thermal Design Current: 15.5A
OCP min: 20.3A
OCP typ: 21.5A
OCP max: 23A
```

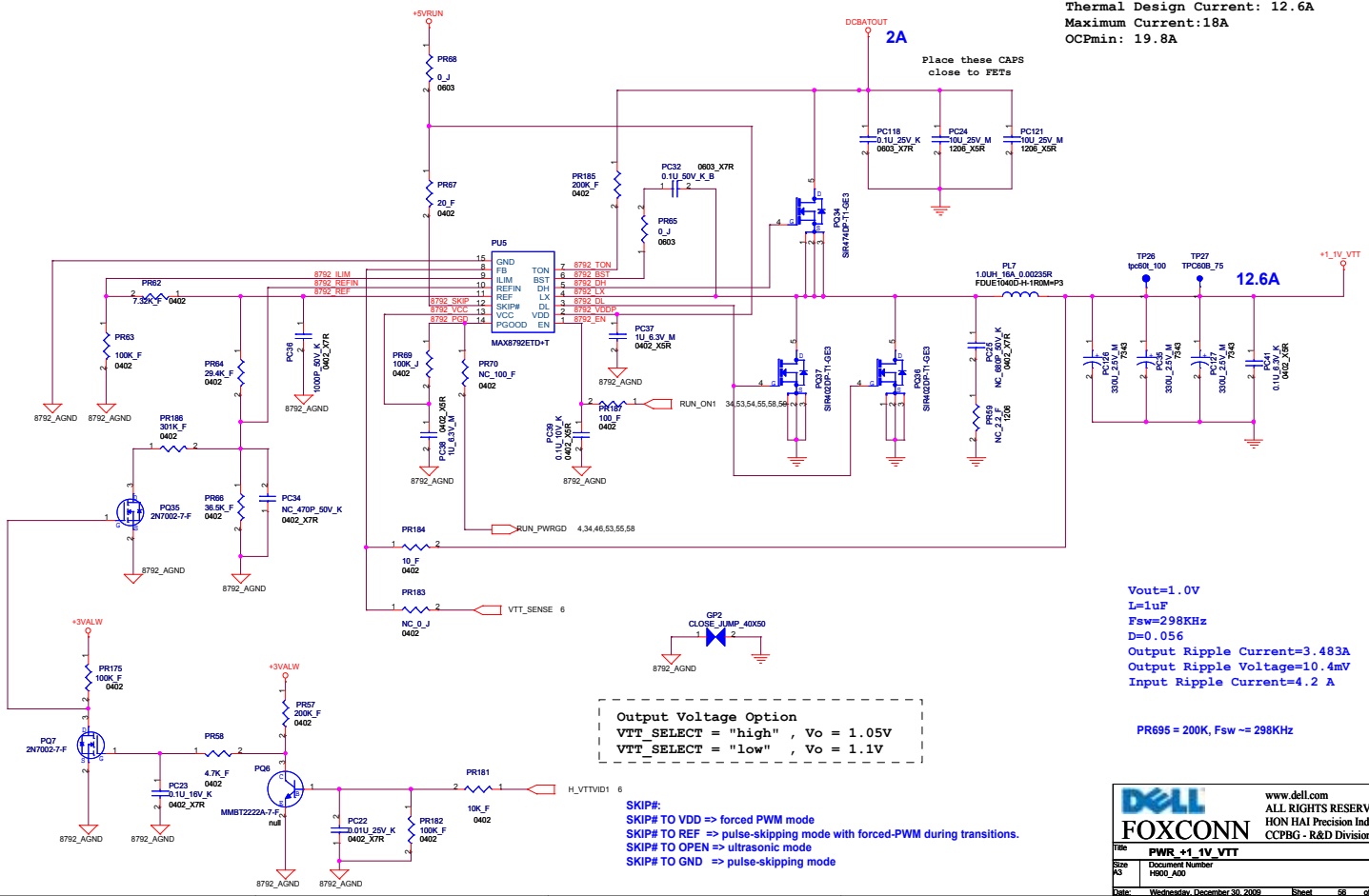


Vout=1.5V  
L=1uF  
Fsw=300KHz  
D=Vout/Vin=0.0769  
Output Ripple Current=4.615A  
Output Ripple Voltage=34.6mV  
Input Ripple Current=2.9A  
LIR=0.43

+0\_75VRUN +/-5%  
Maximum current: 2.1A



+1.1V VTT +/-5%  
 Thermal Design Current: 12.6A  
 Maximum Current:18A  
 OCPmin: 19.8A





Vout=1.0V  
 L=1uF  
 Fsw=298KHz  
 D=0.056  
 Output Ripple Current=3.483A  
 Output Ripple Voltage=10.4mV  
 Input Ripple Current=4.2 A

PR695 = 200K, Fsw ~ 298KHz

Output Voltage Option  
 VTT\_SELECT = "high" , Vo = 1.05V  
 VTT\_SELECT = "low" , Vo = 1.1V

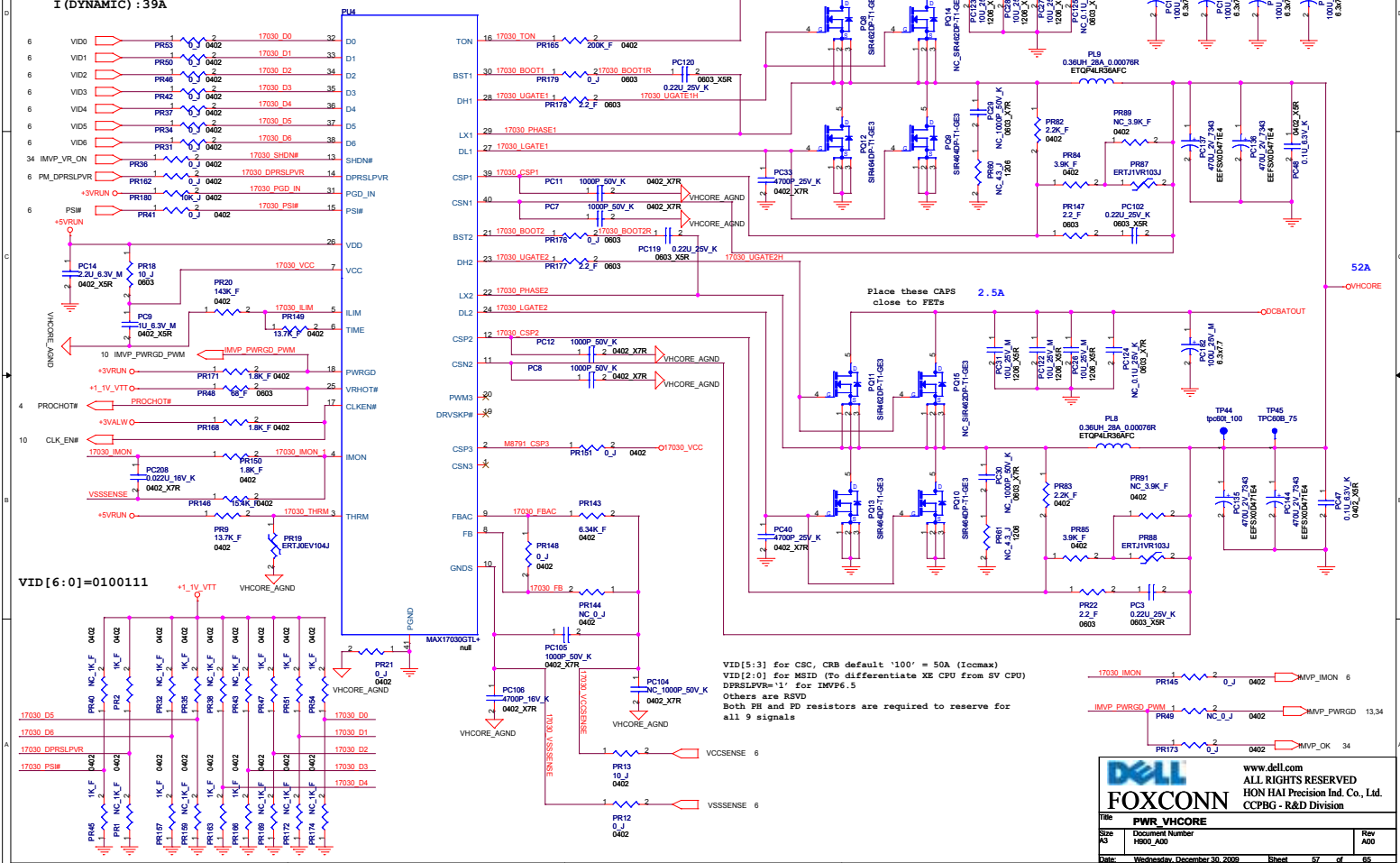
SKIP#:  
 SKIP# TO VDD => forced PWM mode  
 SKIP# TO REF => pulse-skipping mode with forced-PWM during transitions.  
 SKIP# TO OPEN => ultrasonic mode  
 SKIP# TO GND => pulse-skipping mode

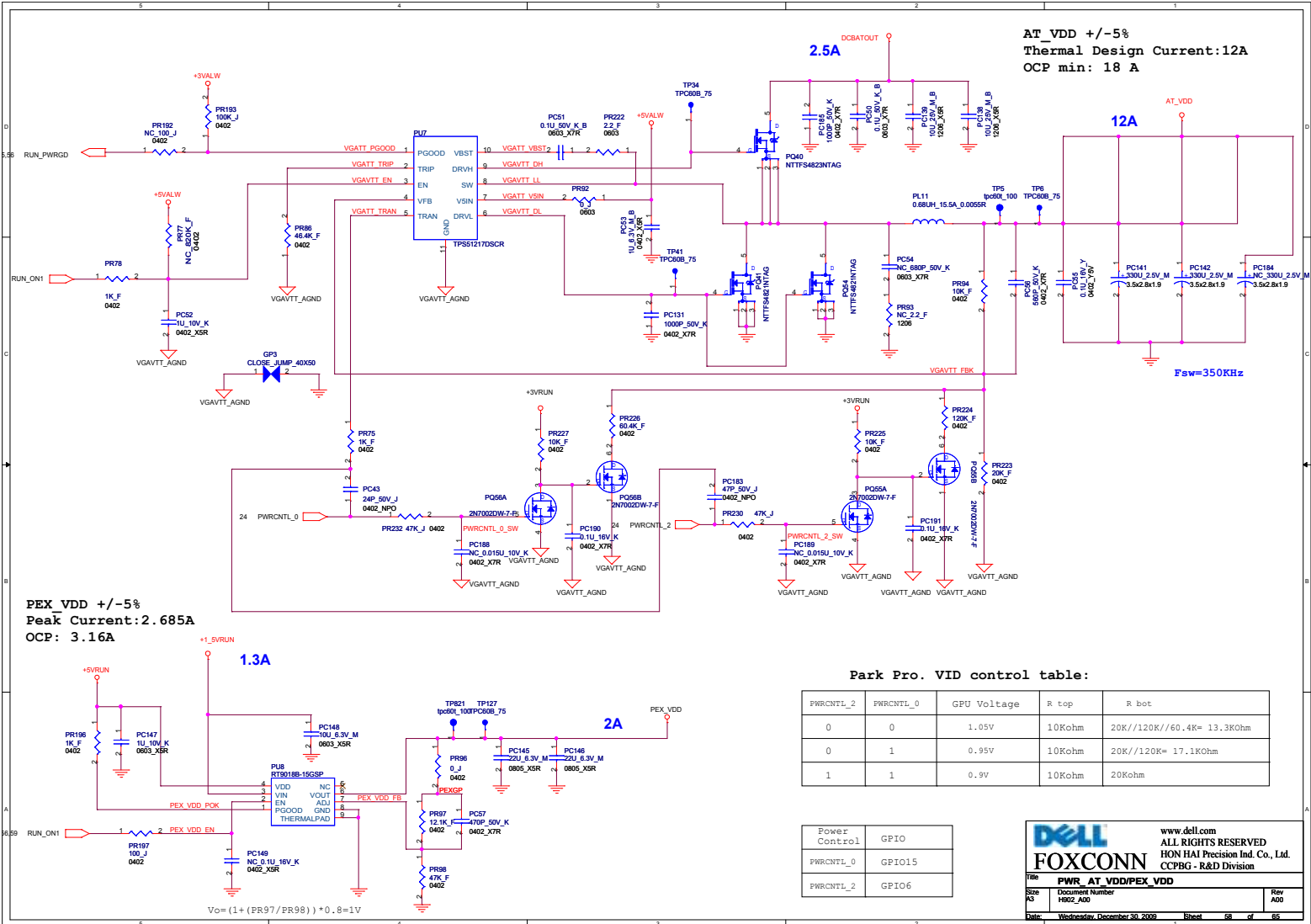
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		CCPBG - R&D Division	
Title <b>PWR +1.1V VTT</b>			
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Clarksfield SV 45W CPU  
V(HFM): 0.95V  
V(LFM): 0.875V  
LL: -1.9mOhm  
I(HFM): 51A  
I(TDC): 38A  
I(DYNAMIC): 39A


OCP setting: 61.7A (30.83A per phase).  
PR649=13.7K Ohm  
OCPmax: 65.6A  
OCPmin: 58.2A





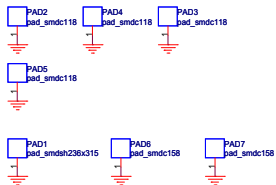
PWRCNTL_2	PWRCNTL_0	GPU Voltage	R top	R bot
0	0	1.05V	10Kohm	20K//120K//60.4K= 13.3Kohm
0	1	0.95V	10Kohm	20K//120K= 17.1Kohm
1	1	0.9V	10Kohm	20Kohm

Power Control	GPIO
PWRCNTL_0	GPIO15
PWRCNTL_2	GPIO6

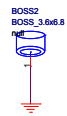
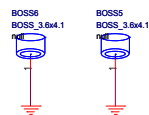
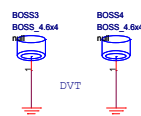
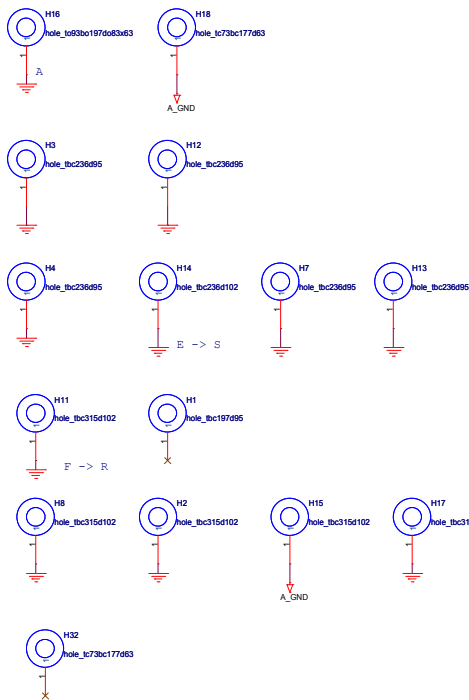
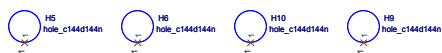
 <b>FOXCONN</b>		www.dell.com ALL RIGHTS RESERVED HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
<b>Title      PWR_AT_VDD/PEX_VDD</b>			
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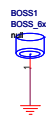
ME



CPU



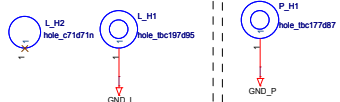
BOSS in Bottom side




BOSS in Top side

LED

Power Button



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H902 DVT

(2009/09/25)

P.25 Change R139 & R143 from 100 ohm to 40.2 ohm for AMD recommend.  
P.24 Change AT\_MEM ID0~3 connect to DVDDATA 0~3.  
P.26 Reserve R627 & R629 for reduce DPE/F\_PLL.  
P.26 Add R630 & R631 to replace Bead L74, L75 and NC C667, C797, C798, C800, C799, C801 for AMD recommend.  
P.25 NC C273, C280, R127, R134 for AMD recommend.


H902 PVT

(2009/11/03)

P.22-27 Change U26 HHPN to 12-2160774-0002.  
P.17 Change L35, L37, L66, L67 to 1L-DML2201-2M00 for PUR recommend.  
P.20 Change C364 to 1C-2B20104-K301 for PUR recommend.  
P.31 Change C263 to 1C-2B20104-K301 for PUR recommend.  
P.34 Change C457, C732, C502, C489, C703, C476, C486, C503, C718 & C739 to 1C-2B20104-K301 for PUR recommend.  
P.35 Change C319 to 1C-2B20104-K301 for PUR recommend.  
P.37 Change C485 & C488 & C725 to 1C-2B20104-K301 for PUR recommend.  
P.45 Change C68 & C532 to 1C-2B20104-K301 for PUR recommend.  
P.46 Change C69 & C142 to 1C-2B20104-K301 for PUR recommend.  
P.46 Change C194, C195, C430 & C431 to 1C-2B20104-K301 for PUR recommend.

(2009/11/18)

P.46 Add C445 0.1uF for EMI recommend.  
P.33 Change CN11 for ME recommend.

  
**FOXCONN**

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(2009/05/13)

P.25 Add R196

(2009/05/14)

P.12 Add R620

P.7 Del R407, R399, and R405 0 ohm for 1.1VTT power plane.

P.4 Change R1

P.27 Change C206 from 0.22u 10V to 0.22u 16V for derating issue.  
P.17 Stuff R268 0 ohm to GND for disable Intel internal LAN.  
(2009/05/22)

P.17 Change R  
P.27 Change R

(2009/05/25)

P.17 Change C  
(2009/06/06)

P.39 Add Q58, Q59, R619, and R639 10K ohm and del D15 & D16 for leakage issue.  
P.6 Add R401 0 ohm and Add R399, R405, R407, R640 1K ohm NC for C-state debugging.

P.6 Add R641  
P.34 Add R643

(2009/06/25)

P.11 Change R  
(2009/07/01)

P.60 Add H32 for ME request.

(2009/07/14)

F.12 ADD R045 &amp; R046 Z.ZR OMM 101 SMBS FH.

P.38 Change C  
P.47 Change F

P.40 Change C499 and C505 from 12pF NPO 10% to 5% for PUR recommend.  
P.11 Change C735 from 12pF NPO 10% to 5% for PUR recommend.  
P.38 Change C78 and C79 from 15pF NPO 10% to 5% for PUR recommend.  
P.11 Change C736 from 15pF NPO 10% to 5% for PUR recommend.  
P.46 Change C244 and C245 from 47pF NPO 10% to 5% for PUR recommend.  
P.39 Add C445 0.1uF for Hipot test.  
P.27 Delete R146 0ohm for derating.  
P.18 Delete R257 0ohm for derating.  
P.17 Delete R237 0ohm for derating.

**(2009/07/22)**

P.17 Change C  
P.39 Add C791

P.12 Change R303 & R331 from 4.7K to 2.2K ohm NC.

(2009/07/24)

P.34 Add Q28

P.44 Change R46 from 33K to 10K ohm & R472 from 15K to 6.8Kohm for thermal setting.

P.39 NC C26 0.1uF, R14 1K ohm and U2 C4C08.  
Add R612 1K ohm for disable external EEPROM.

P.44 Add C463 100p NC for Thermal sensor vendor recommend.

(2009/07/28)

P.9 Change R5  
P.33 Change H

P.31 Change I

P.33 Change D5 location to D5 for Safety recommend.  
P.11 Change D9 location to D5 for Safety recommend.  
P.11 Change R340 & R341 location to R427 & R426 for Safety recommend.  
P.24 Change R426 location to R341 for Safety recommend.  
P.45 Change R427 location to R340 for Safety recommend.  
P.32 Change U5 location to U4 for Safety recommend.  
P.10 Change U37 location to U40 for Safety recommend.  
P.45 Change U4 & U40 location to U5 & U37 for Safety recommend.  
P.4 Change U17 from 14-MC74VHC-1G04 to 14-74AHC1G-1400 for L6 recommend.

(2009/08/07)

P.31 Change C  
(2009/08/20)

P.30 Change L1 to LanKom 1T-1LG2425-P100.  
P.20 Change R61 to NC for DDR Intel recommend.  
P.21 Change R66 to NC for DDR Intel recommend.

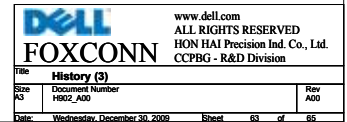
P.20 & 21 Del  
P.20 Reserve

P.21 Reserve R29 & R31 1K ohm for intel DDR3 M1 solution.  
(2009/08/24)

P.24 Add R636  
P.24 Add Cap7


(2009/08/25)

P.44 Add R637, R638, R645 & R646 0 ohm for Intel recommend.



# H900 Power Change History

Number	Date	Page	Title	Issue	Description	Version
1	2009/04/10	P.55	+1_05VRUN	1.05V Vripple over spec.	Change PC143 from 220uF 2.5V 35m Ohm(1C-31R0227-MX00) to 330uF 2.5V 15m Ohm(1C-33U0337-KX00).	X01
2	2009/04/13	P.51	Charger	Change PR152 for ADAPT OC function.	Change PR152 from 8.45K 0402 1%(1R-0008451-F200) to 10K 0402 1%(1R-0000103-F200)	X01
3	2009/05/06	P.57	VCORE	Fine tune VCORE setting for loadline, transition and mosfet ring issue.	Add PC7 :470pF 50V X7R 0402(1C-2B20471-K000) Add PC106 :4700pF 16V X7R 0402(1C-2B20472-K002) Add PC29 and PC30 :1000pF 50V X7R(1C-2B3012-MX00) Add PR60 and PR61 :4.3 Ohm 1206 5%(1R-000043X-J600) Del PQ14 and PQ15 SiR462DP-T1-GE3 (17-SiR462D-PT00) Change PR12 from 10 Ohm 0402 5%(1R-0000100-J200) to 0 Ohm 0402 5%(1R-0000000-J200) Change PR143 from 7.15K Ohm 0402 1%(1R-0007151-F200) to 6.34K Ohm 0402 1%(1R-0006341-F200) Change PR82 and PR83 from 2.7K Ohm 0402 1%(1R-0000272-F200) to 2.2K Ohm 0402 1%(1R-0000222-F200) Change PR84 and PR85 from 4.02K Ohm 0402 1%(1R-0004021-F200) to 1.69K Ohm 0402 1%(1R-0001691-F200)	X01
4	2009/05/06	P.58	AT_VDD	Changing H-S,L-S Mosfets and boost resistor for solving ring issue.	Change PQ40 from Si7716ADN(17-S17716A-DN00) to AON7402L(17-AON7402-L000) Change PQ41 from Si7114ADN(17-S17114A-DN00) to AON7700(17-AON7700-0000) Change PR222 from 0 Ohm 0603 1%(1R-0000000-J300) to 1 Ohm 0603 1%(1R-000010X-F300)	X01
5	2009/05/07	P.54	+1_5VSUS	Modifying OCP setting for +1_5VSUS.	Change PR204 from 4.87K 0603 1%(1R-0004871-F300) to 5.23K 0603 1%(1R-0005231-F300) Change PR203 from 3.24K 0603 1%(1R-0003241-F300) to 3.09K 0603 1%(1R-0003091-F300)	X01
6	2009/05/11	P.56	+1_1V_VTT	Change remote sense detection from CPU to output Cap.	Add PR184 10 Ohm 0402 1%(1R-0000100-F200) Delete PR183 0 Ohm 0402 5%(1R-0000000-J200)	X01
7	2009/05/12	P.50	PSID	Change PQ4 to high ESD protection (6000KV).	Change PQ4 from 2N7002K(17-2N7002K-0001) to FDV301N(17-FDV301N-0000).	X01
8	2009/05/12	P.55 P.56	+1_05VRUN +1_1V_VTT	Change RUN_PWRGD singal from +1_1V_VTT rail to +i_05VRUN rail.	Delete PR70 100 Ohm 0402 1%(1R-0000101-F200) Add PR195 10 Kohm 0402 1%(1R-0000103-F200) Add PR194 0 Ohm 0402 5%(1R-0000000-J200)	X01
9	2009/05/13	P.57	VCORE	PROCHOT# signal pull-up resistor is 56 ohm in IMVP side.	Change PR48 from 56 Ohm 0603 1%(1R-0000560-J300) to 68 Ohm 0603 1%(1R-0000680-F300)	X01
10	2009/05/20	P.58	PEX_VDD	Modify feedback capacitor for improving loop response.	Change PC57 from 0.01uF 0402 25V X7R(1C-2B20103-M000) to 470pF 0402 50V X7R(1C-2B20471-K000)	X01
11	2009/05/20	P.51	DC_IN	Modify resistor and capacitor for reducing adapeter's inrush current.	Change PR28 from 47KOhm 0402 5%(1R-0000473-J200) to 100KOhm 0402 5%(1R-0000104-J200) Change PC6 from 0.1uF 0603 50V(1C-2B30104-K000) to 0.22uF 0603 25V X5R(1C-2B30224-K400)	X01
12	2009/05/26	P.54	+1_5VSUS	Add a capacitor between CSH and FB for improving jitter issue.	Add PC207 4700pF 25V 0402 X7R 10%(1C-2B20472-K001)	X01




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13	2009/06/18	P.57	V_CORE	Change GND design for C-state issue	Change PR21.1 to PGND. Change PR21.2 to AGND. Change PC14.2 to PGND.	X02
14	2009/07/02	P.57	V_CORE	Change boost resistor to reduce ring of Mosfet. Add feedback capacitor to reduce ground noise.	Change PR178 from 0 Ohm 0603 5% (1R-0000000-J300) to 2.2 Ohm 0603 1% (1R-000022X-F300) Change PR177 from 0 Ohm 0603 5% (1R-0000000-J300) to 2.2 Ohm 0603 1% (1R-000022X-F300) Add PC7: 1000pF 16V X7R (1C-2B20102-K001) . Add PC8: 1000pF 16V X7R (1C-2B20102-K001) . Add PC11: 1000pF 16V X7R (1C-2B20102-K001) . Add PC12: 1000pF 16V X7R (1C-2B20102-K001) .	X02
15	2009/07/06	P.51	Charger	Change rating voltage from 25V to 50V and size from 0603 to 0805 for Capacitor(PC6) .	Change PC6 from 0.22uF 25V X5R 0603 10% (1C-2B30224-K400) to 0.22uF 50V X5R 0805 10% (1C-2B70224-K600)	
16	2009/07/10	P.57	V_CORE	Modify DCR feedback and IMON setting.	Change PR84 and PR85 from 1.69K 0402 1% (1R-000169I-F200) to 3.9K 0402 1% (1R-000390I-F200) Change PR150 from 10K 0402 1% (1R-0000103-F200) to 1.8K 0402 1% (1R-0000182-F200) Change PC208 from 0.1uF 6.3V 0402 (1C-2B20104-K101) to 0.022uF 16V 0402 X7R (1C-2B20223-K000) Change PR146 from 12K 0402 1% (1R-0000123-F200) to 15.4K 0402 1% (1R-0001542-F200)	X02
17	2009/07/20	P.59	Other power plane	Add discharge path for 1_5VRUN and 1_05VRUN	Add PR104:330 Ohm 0603 5% (1R-000033I-J300) Add PR95:330 Ohm 0603 5% (1R-000033I-J300) Add PQ21:2N7002-7-F SOT-23 (17-2N70027-F000) Add PQ18:2N7002-7-F SOT-23 (17-2N70027-F000)	X02
18	2009/07/24	P.57	V_CORE	Add AL capacitor to reduce acoustic noise.	Add PC113:EEEFK1E101XP,100uF,25V,20%, 6.3*7.7,0.34ohm (1C-1XX0107-M400) Add PC182:EEEFK1E101XP,100uF,25V,20%, 6.3*7.7,0.34ohm (1C-1XX0107-M400)	X02
19	2009/09/25	P.58	VGA_CORE	Add more GPIO pin for VAG 4 level controller	Add NC_PC187,NC_PC188,NC_PC189 PR230,PR231,PR232, 0ohm Remove PR79, PR80	X02
20	2009/09/25	P.58	VGA_CORE	Change AOS MOS to ON MOS for reducing risk of induce voltage	Change PQ40 PQ41 and PQ54 to ON MOS 4823 and 4821.	
21	2009/11/19	P.58	VGA_CORE	EMI request add one cap	Add PC185 1000pF	
22	2009/11/19	P.58	VGA_CORE	Reduce inductor current when VID change	change PR230, PR232, from 0 to 47K. change PC188, PC189, from 0.047uF to 0.015uF. PC56 from 22pF to 560pF NC_PC131, PC141, PC142, from 330uF 15mohm to 330uF 9mohm. Add NC_PC190,NC_PC191 change PR86, to 46.4K for OCP 15A	
23	2009/11/19	P.58	VGA_CORE	TI suggest reducing short through risk	change PR222, from 1 ohm to 2.2 ohm	
24	2009/11/19	P.58	VGA_CORE	Remove unused GPIO pin	Remove PQ57,PD10,PR228,PR229	
24	2009/11/27	P.58	VGA_CORE	R C delay as Dell request	NC_PC188, PC_PC189 and add PC190, PC191 0.1uF	



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