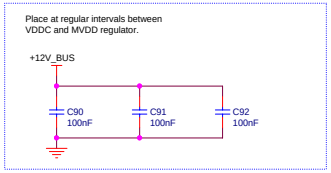
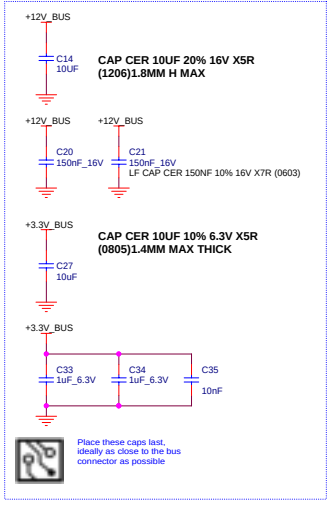
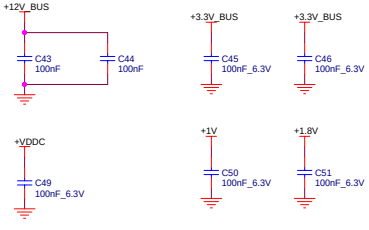
Cedar Walleye

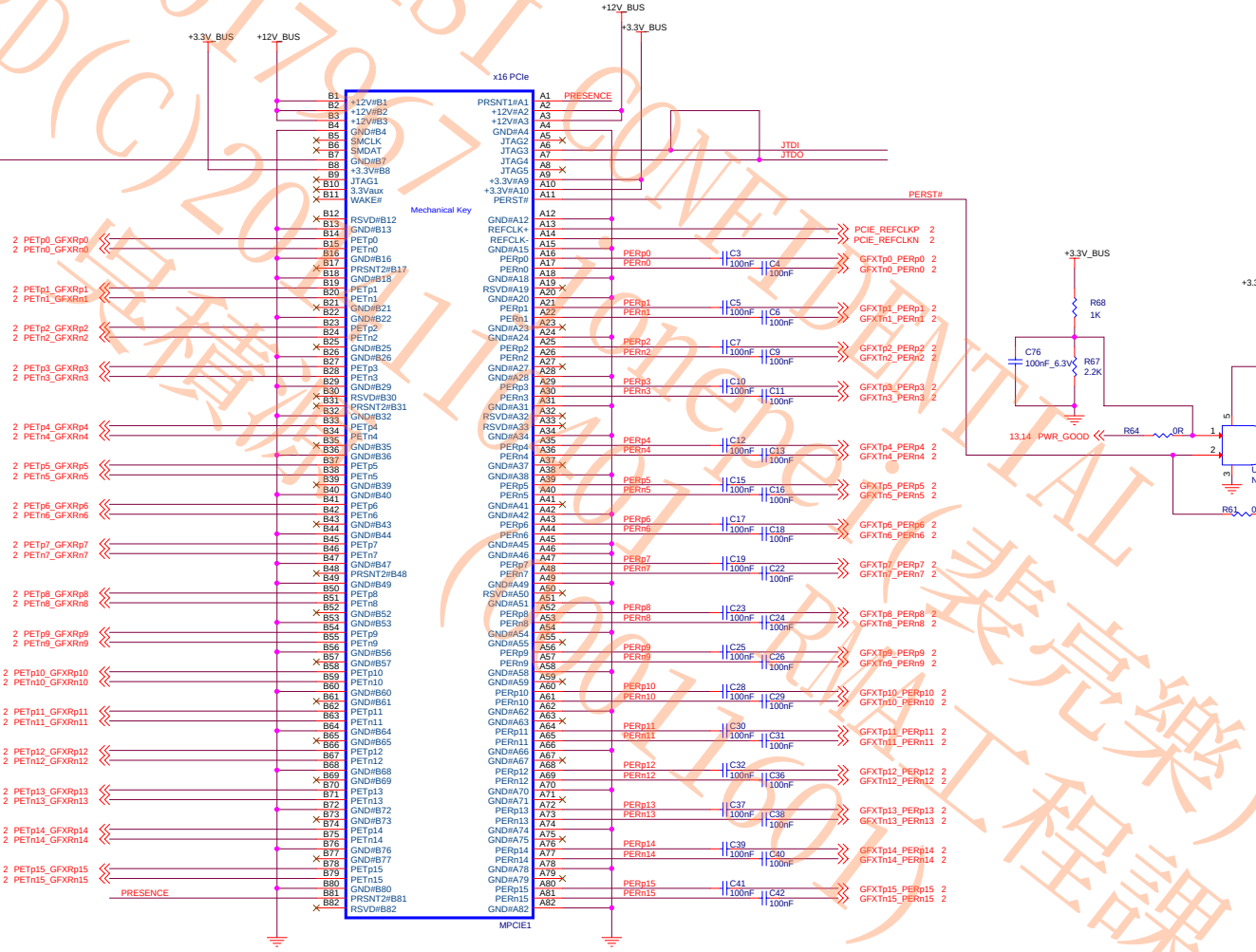
VGA(header) +HDMI/DP + DVI

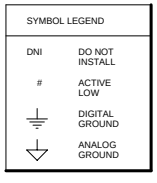
PCI-EXPRESS EDGE CONNECTOR











Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Tuesday, March 12, 2013 Rev 2

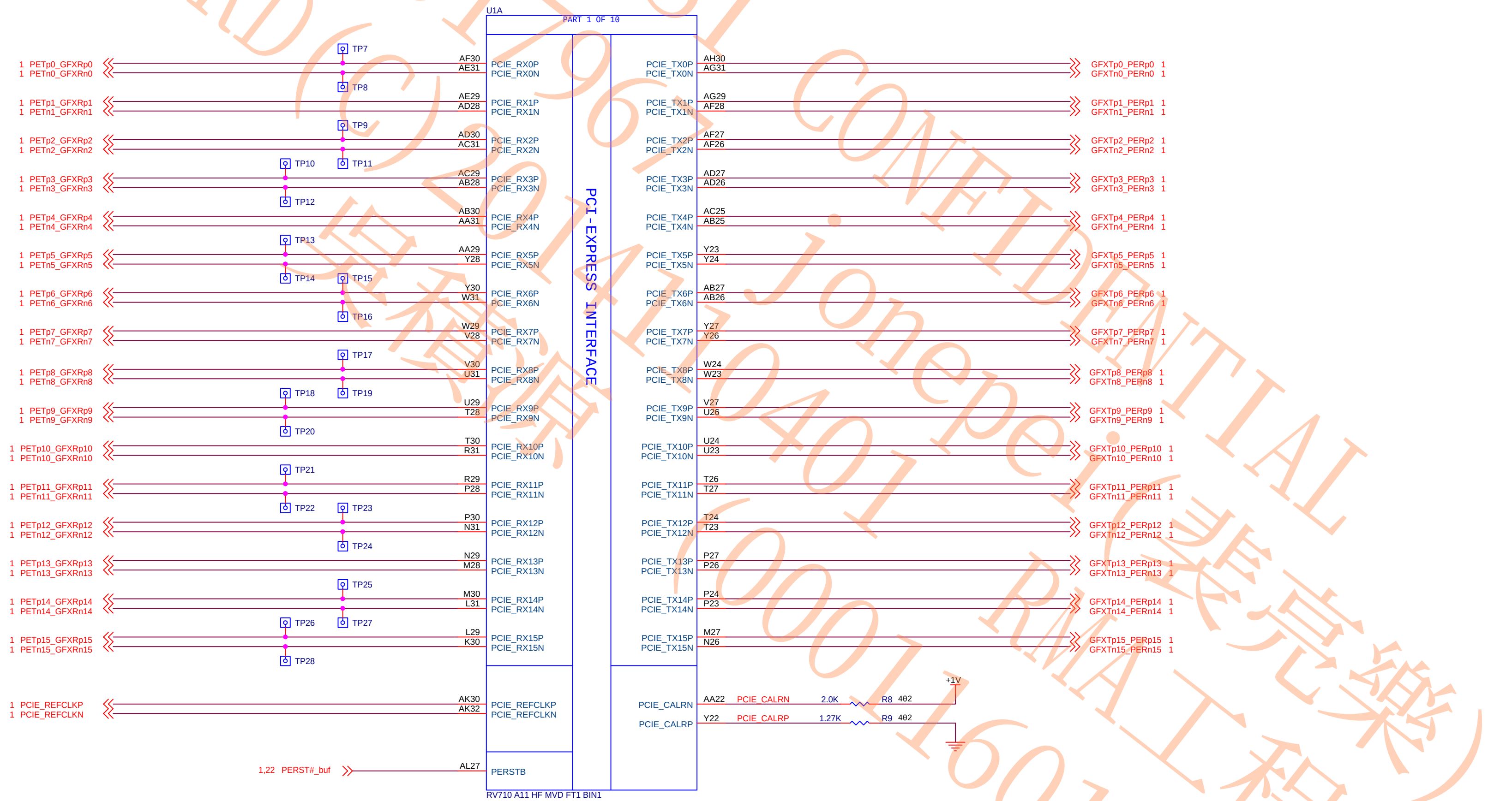
Sheet 1 of 25

Title Cedar DDR3 2GB 8pcs 128Mx16

Doc No. 105-C027XX-00B

(2) Cedar PCIE Interface

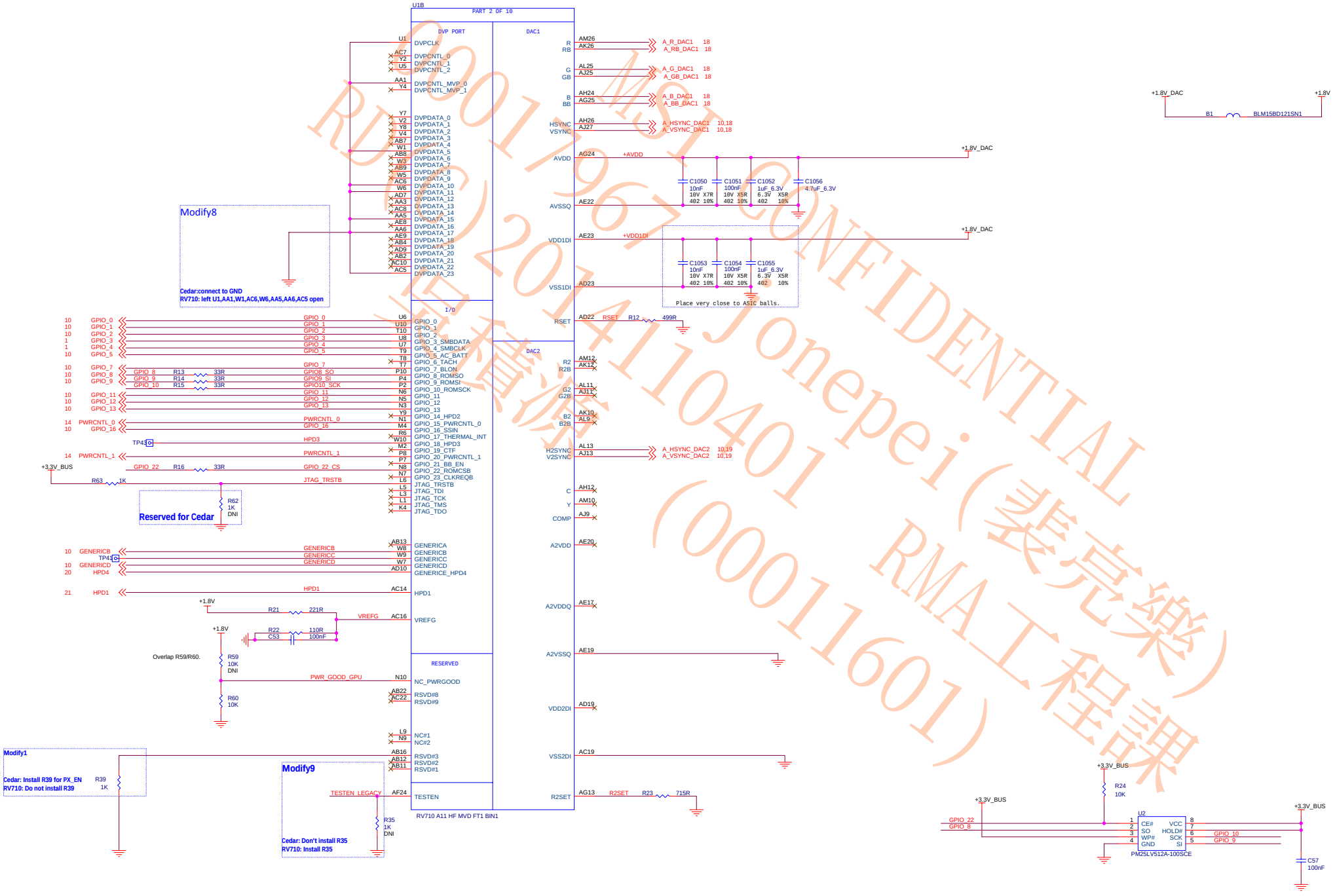
NOTE: some of the PCIE testpoints will be available through via on traces.



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00B
Rev	2
Date:	Friday, February 01, 2013
Sheet	2 of 25

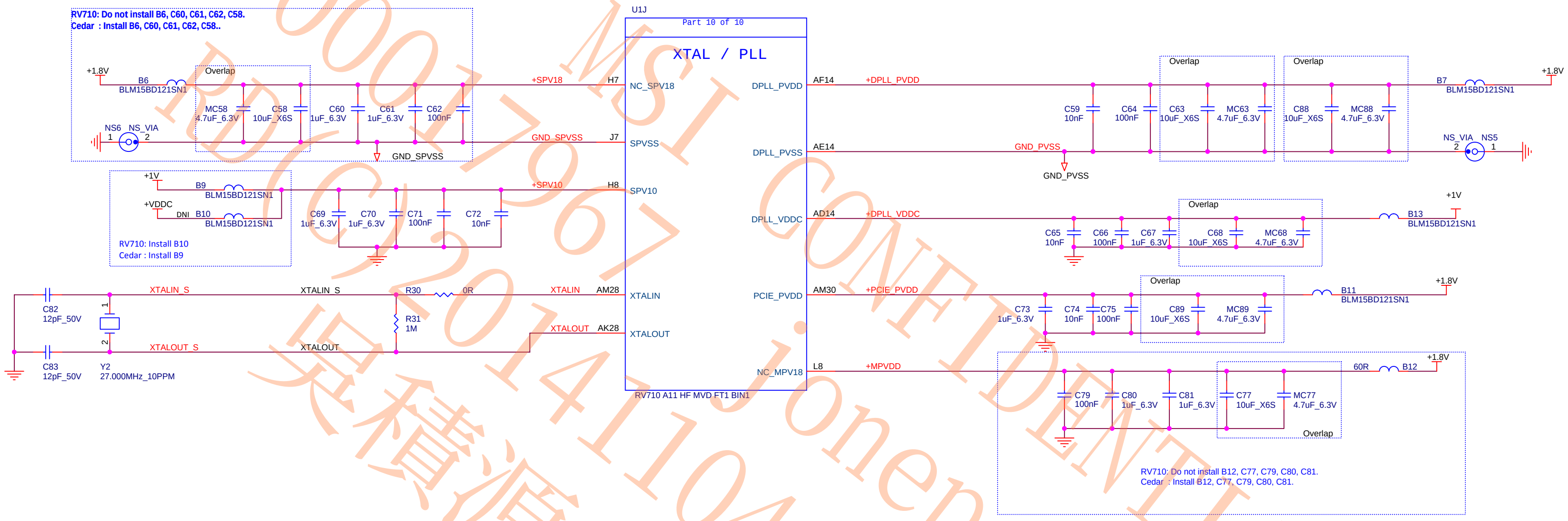
(3) Cedar Main



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 08, 2013 Rev 1
Sheet 3 of 25
Title Cedar DDR3 2GB 8pcs 128Mx16
Doc No. 105-C027XX-00B

(04) Cedar GPIOs CF XTAL



DDC1	Top VGA
AUX1	NC
DDC2	NC
AUX2	NC
DDC/AUX3	Middle HDMI/DP
DDC/AUX5	Bottom DVI/VGA
DDC6	NA
I2C	Debug Access Port

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 08, 2013 Rev 2

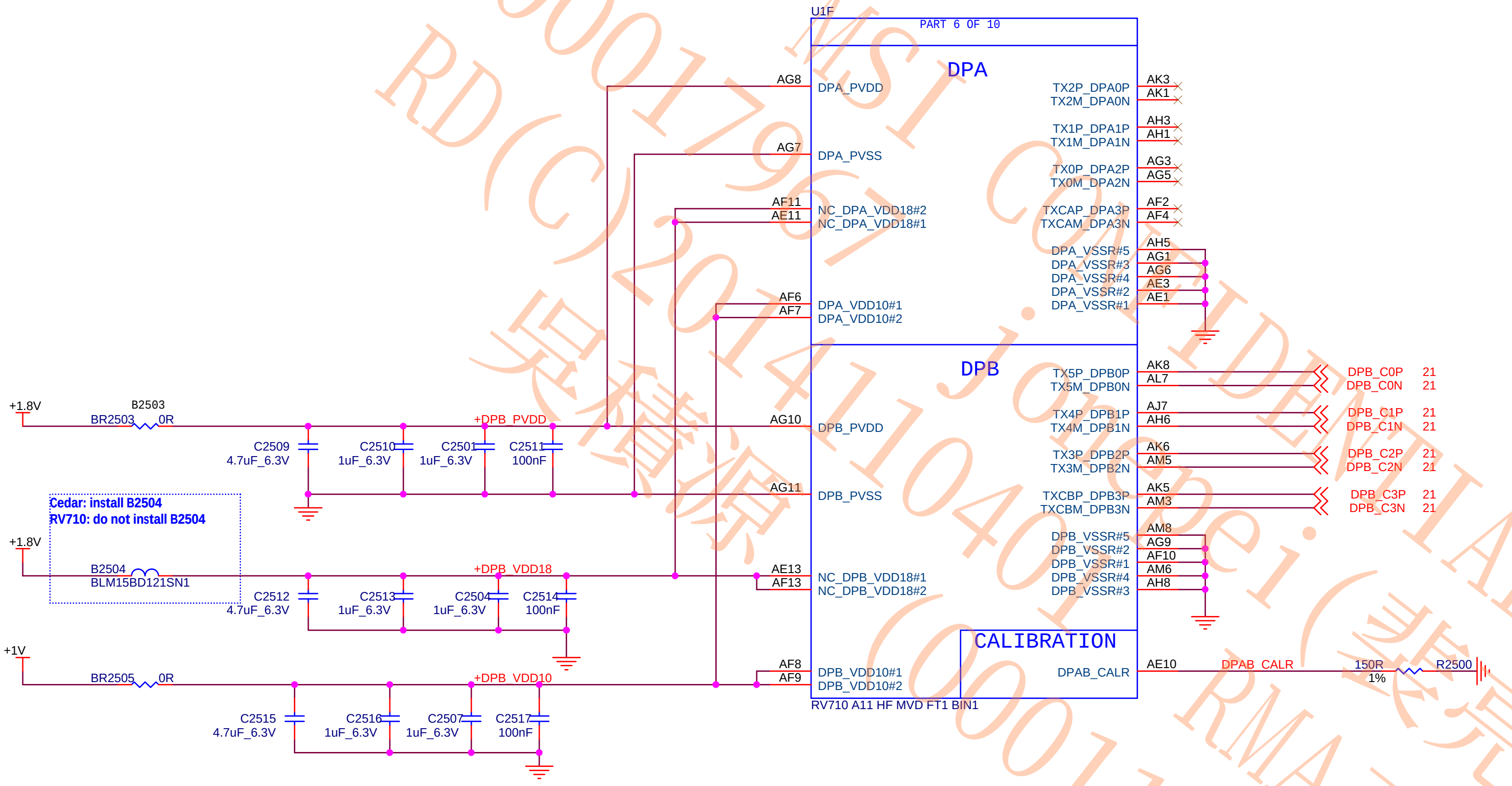
Sheet 4 of 25

Title Cedar DDR3 2GB 8pcs 128Mx16

Doc No. 105-C027XX-00

(05) Cedar TMDP A&B

TMDP INTERFACE

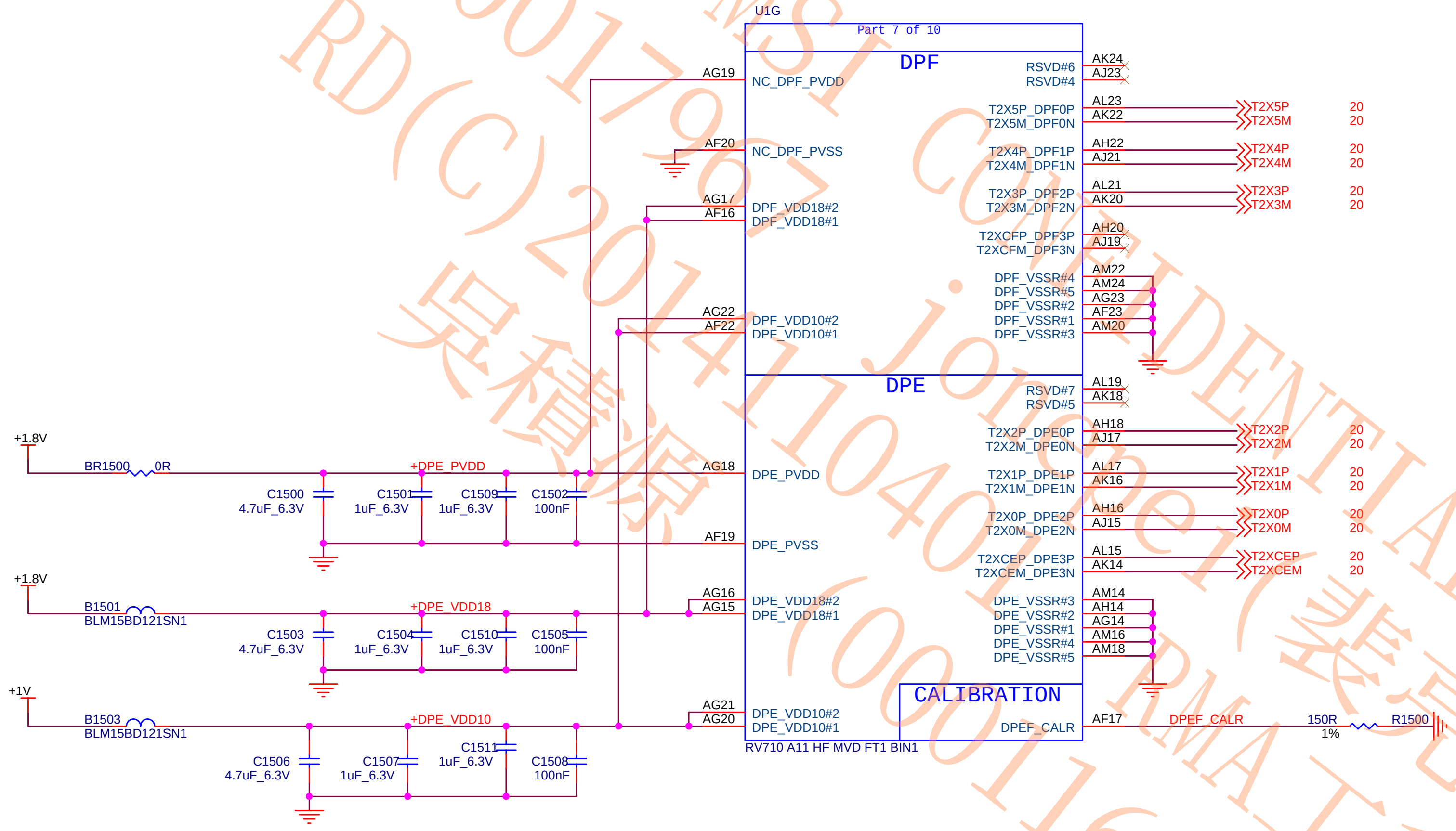


Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 01, 2013		Rev 2
Sheet 5 of 25		
Title Cedar DDR3 2GB 8pcs 128Mx16		Doc No. 105-C027XX-00

(06) Cedar TMDP E&F

LVTMDP INTERFACE

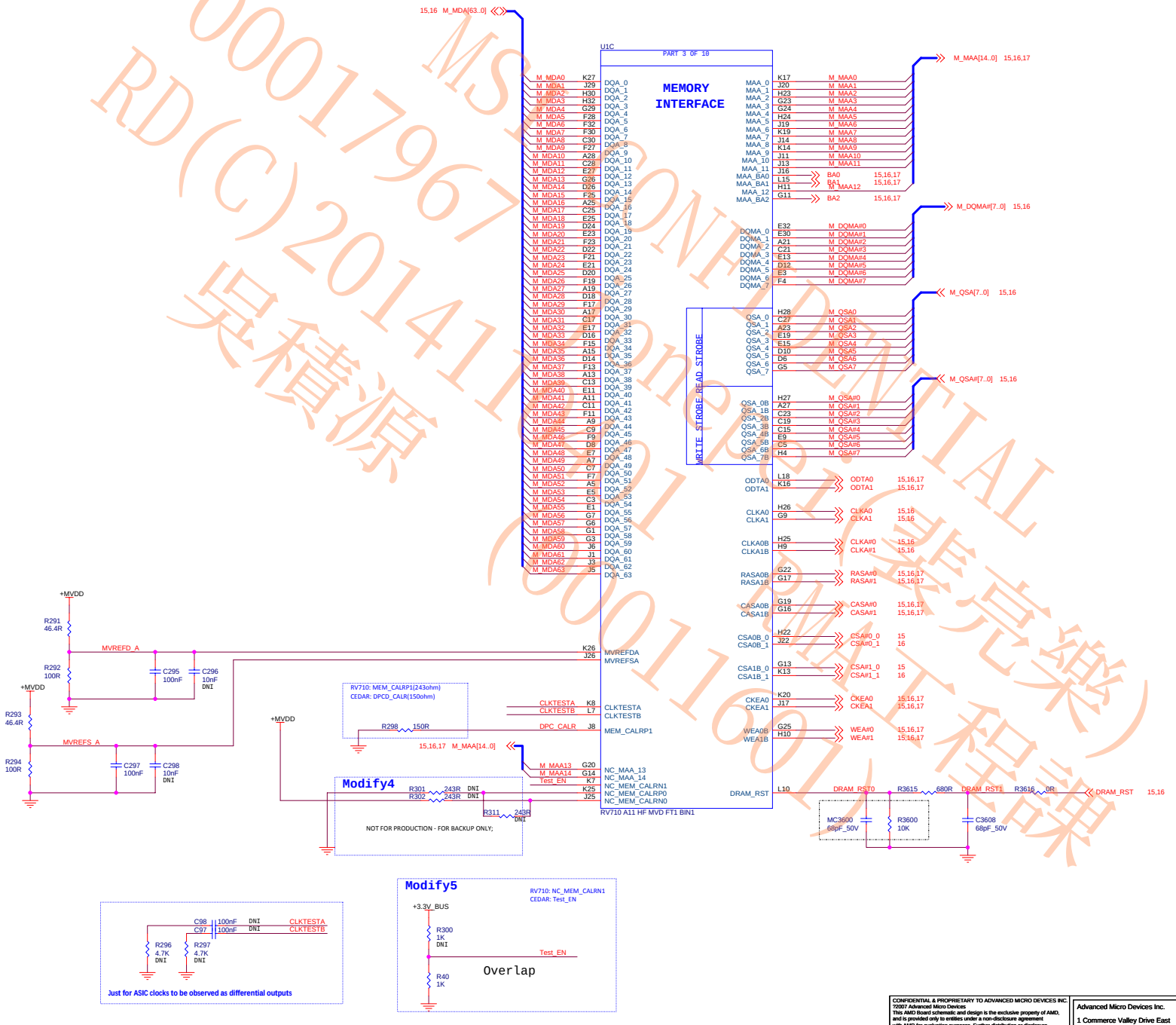


Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 01, 2013		Rev 2
Sheet 6 of 25		
Title Cedar DDR3 2GB 8pcs 128Mx16		Doc No. 105-C027XX-00

(07) Cedar MEM Interface Ch A

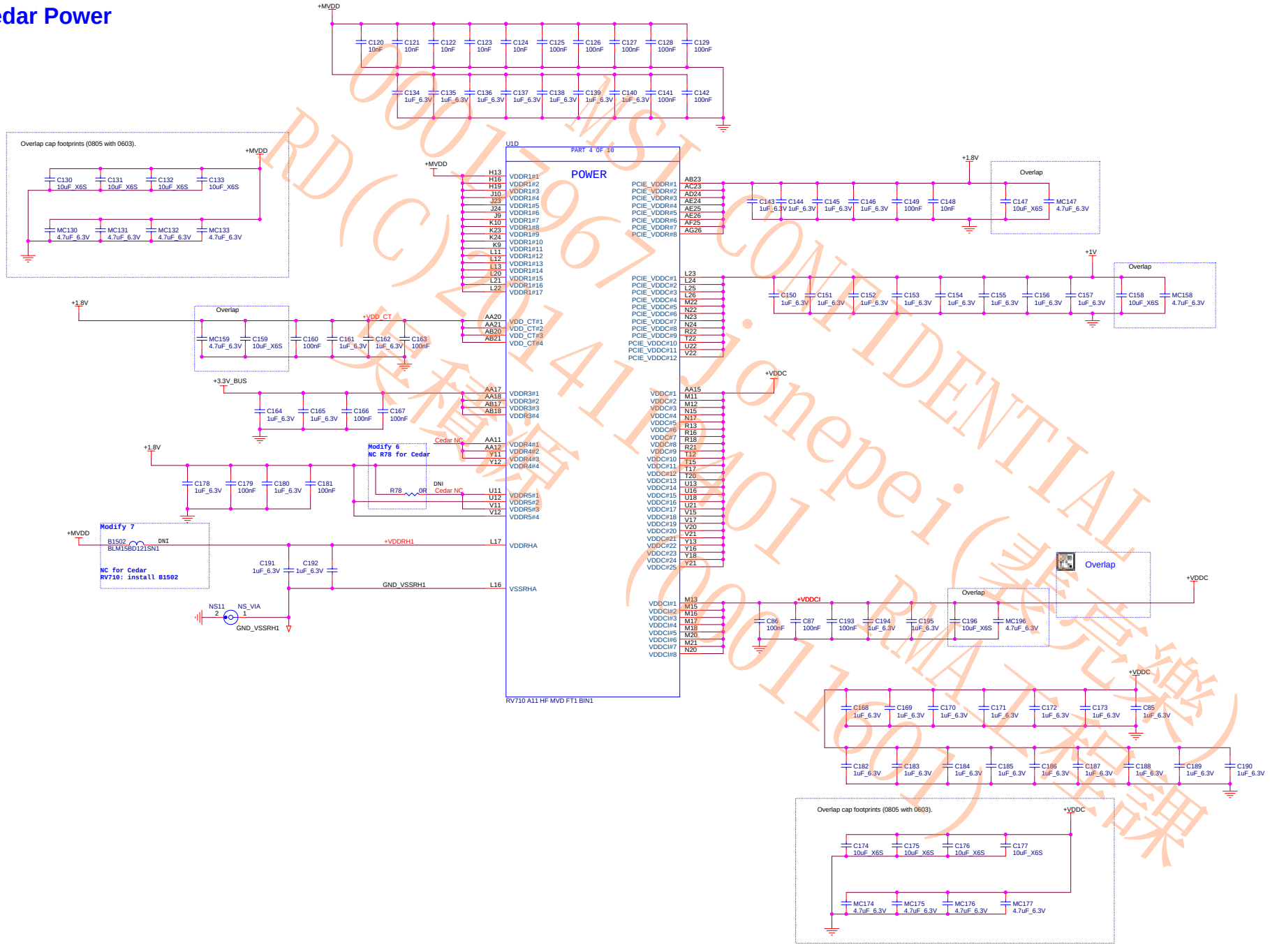
MEMORY INTERFACE



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Friday, February 08, 2013
Rev	2
Sheet	7 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00

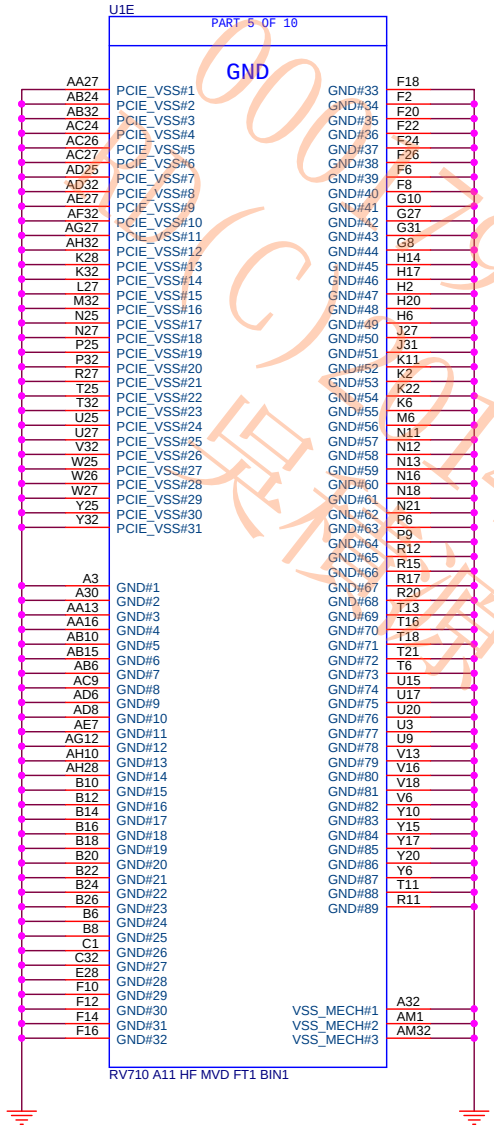
(08) Cedar Power



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Friday, February 08, 2013
Rev	2
Sheet	8 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00

(09) Cedar GND



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, January 25, 2013 Rev 2

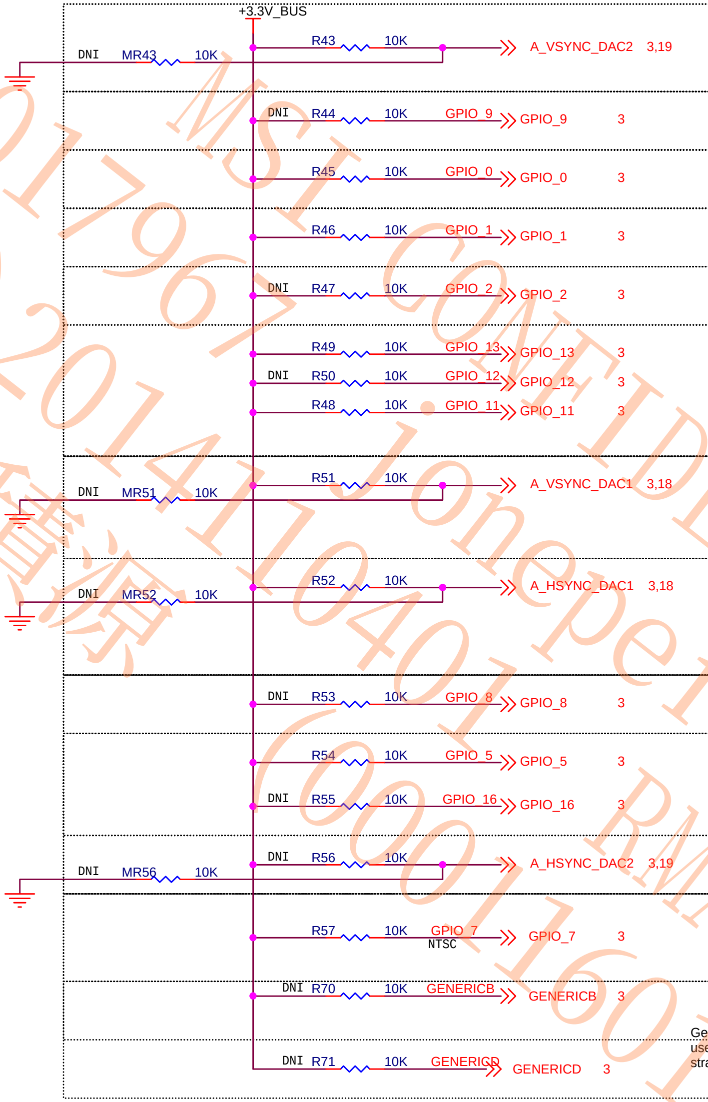
Sheet 9 of 25

Title Cedar DDR3 2GB 8pcs 128Mx16

Doc No. 105-C027XX-00

(10) Cedar STRAPS

PIN BASED STRAPS



VIP_DEVICE_STRAP_DIS
0:VIP host port devices present (use if Theater is populated)
1: No slave VIP host port devices reporting presence during reset
(use for configurations without video-in)

VGA DISABLE : 1 for disable (set to 0 for normal operation)

GPIO(0) - TX_PWRS_ENB (Transmitter Power Savings Enable)
0: 50% Tx output swing for mobile mode
1: full Tx output swing (Default setting for Desktop)

GPIO(1) - TX_DEEMPH_EN (Transmitter De-emphasis Enable)
0: Tx de-emphasis disabled for mobile mode
1: Tx de-emphasis enabled (Default setting for Desktop)

GPIO(2) - BIF_GEN2_EN (5.0 GT/s Enable)
0 : Default. (Driver Controlled Gen2)
1 : Strap Controlled Gen2

GPIO(13, 12,11) - CONFIG[2..0]

CONFIG[2]
CONFIG[1]
CONFIG[0]

100 -	512Kbit	M25P05A	(ST)
101 -	1Mbit	M25P10A	(ST)
101 -	2Mbit	M25P20	(ST)
101 -	4Mbit	M25P40	(ST)
101 -	8Mbit	M25P80	(ST)
100 -	512Kbit	Pm25LV512	(Chingis)
101 -	1Mbit	Pm25LV010	(Chingis)

Reserved

Reserved

BIF_CLK_PM_EN
0 - Disable CLKREQ# power management capability
1 - Enable CLKREQ# power management capability

[GPIO_5 : GPIO_16]

Hynix [0:1]
Samsung [1:0]

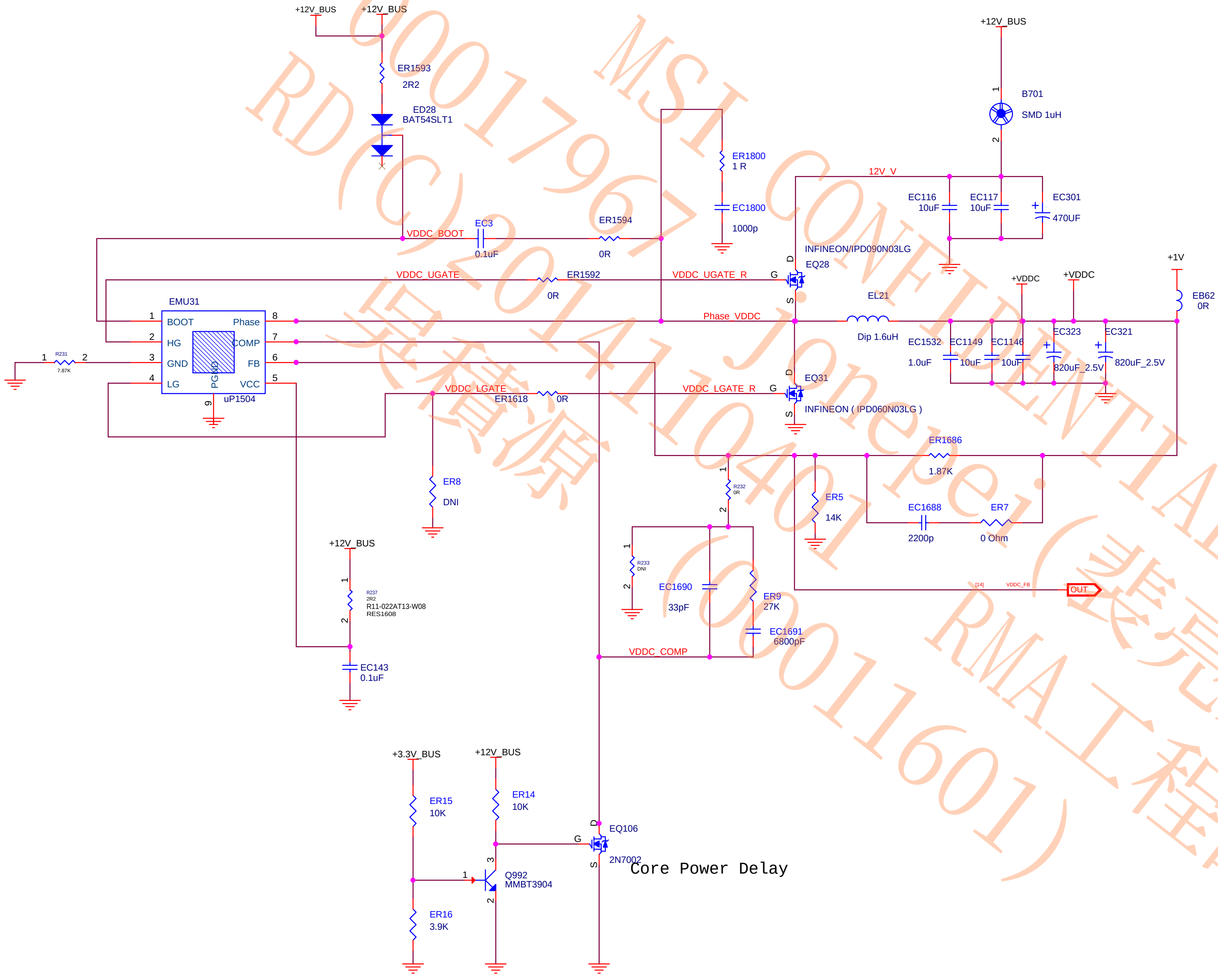
RESERVED :Internal use only. Other logic must not affect this signal during RESET.

TV OUT STANDARD 0 - PAL TVO 1 - NTSC TVO

GenericB and GenericD will be used for additional memory vendor straps.

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

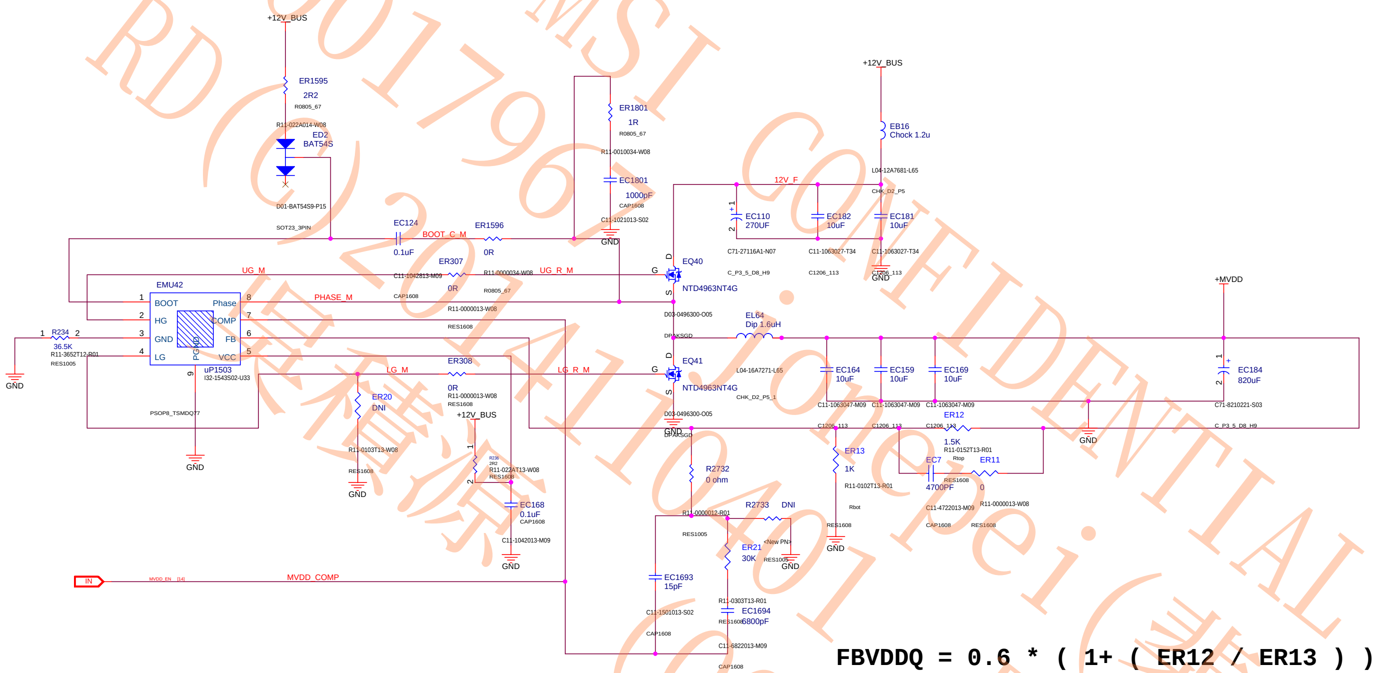
Date: Friday, February 08, 2013	Rev 2
Sheet 10 of 25	
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 01, 2013
Rev 2
Sheet 11 of 25
Title Cedar DDR3 2GB 8pcs 128Mx16
Doc No. 105-C027XX-00

(12) MVDD



FBVDDQ = 0.6 * (1+ (ER12 / ER13))

1.5 = 0.6 x (1 + (1.5/1))

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Friday, February 01, 2013
Rev	2
Sheet	12 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00

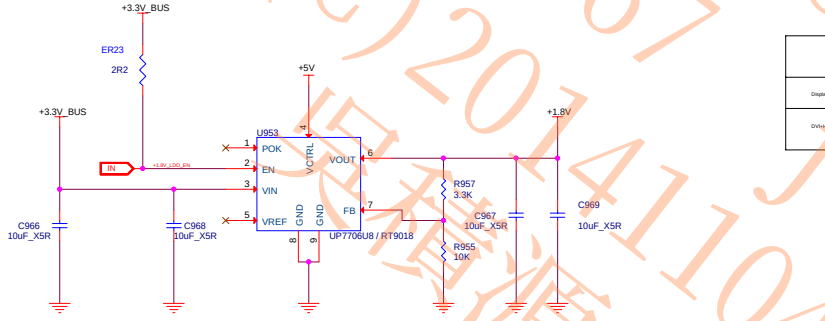
(13) Linear Regulators

Linear Regulators

Regulators for +5V, +5V_VESA and +5V_VESA2

LDO #1: Vin = 3.00V to 3.60V (3.3V +/- 9%) Vout = +1.8V +/- 2%; Iout = 1.6A (TBV) RMS MAX

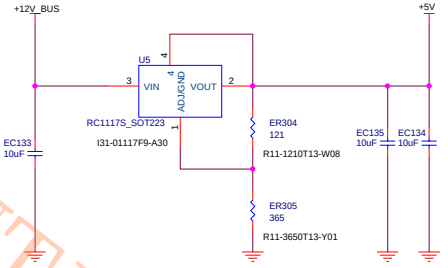
PCB: 50 to 70mm sq. copper area for cooling



Vout=0.8V * (1+ R957 / R955)

1.8V WORST-CASE REQUIREMENT

Display Config	Est. Current
DVI+HDMI+DP	1330mA



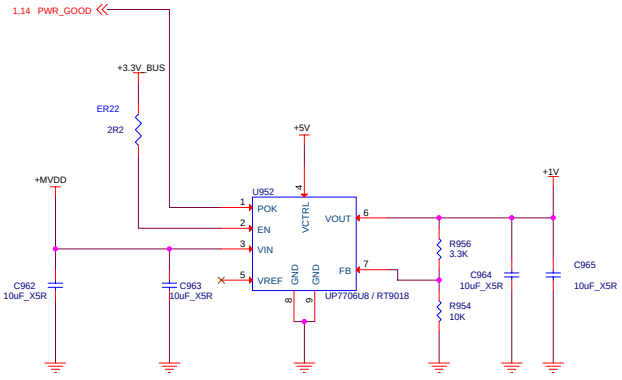
Vout=1.25V* [1+(ER305/ER304)]

LDO #2: Vin = +1.32V to 1.84VMAX Vout = +1.01V +/- 2% Iout = 1.7A (TBV) RMS MAX

PCB: 50 to 70mm sq. copper area for cooling

1.0V WORST-CASE REQUIREMENT

Display Config	Est. Current
DVI+HDMI+DP	1560mA



Vout=0.8V * (1+ R956 / R954)

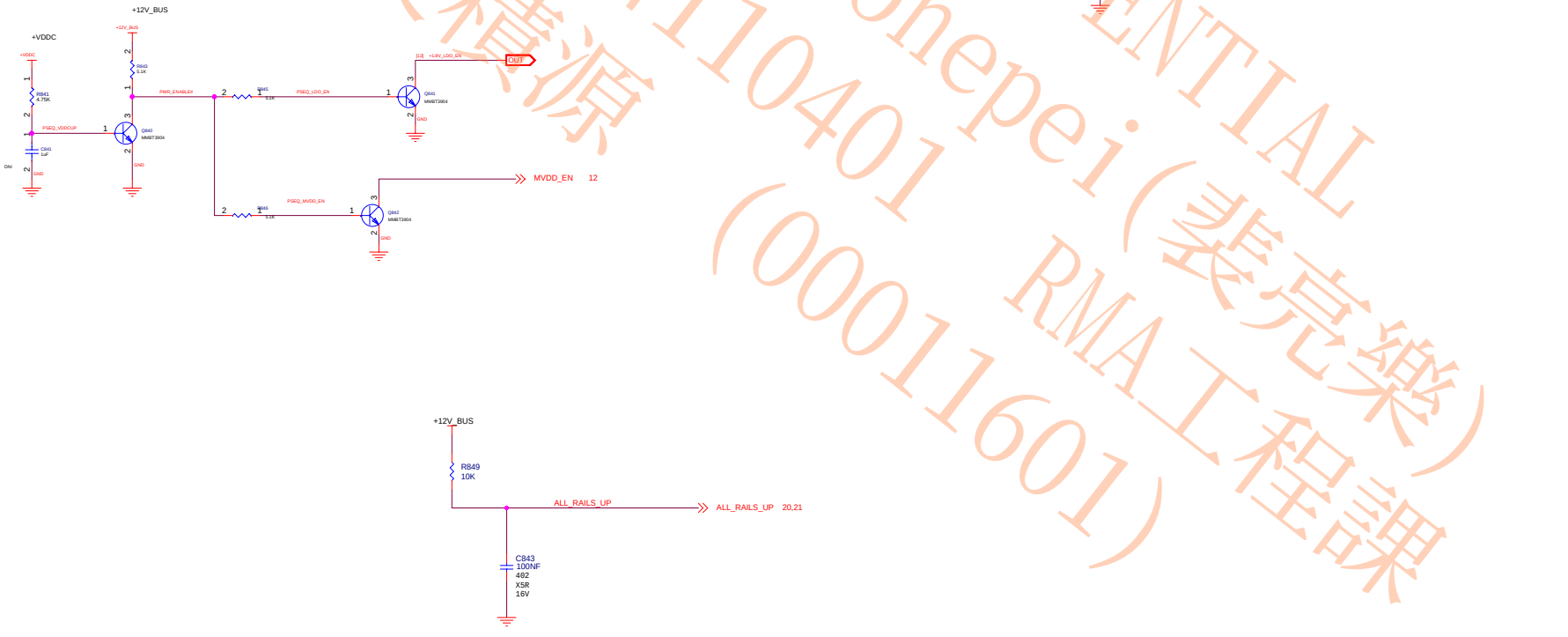
Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Friday, January 25, 2013	Rev	2
Sheet	13 of 25		
Title	Cedar DDR3 2GB 8pcs 128Mx16	Doc No.	105-C027XX-00

(14) Power Management

Power Play

Power up/down Sequencing

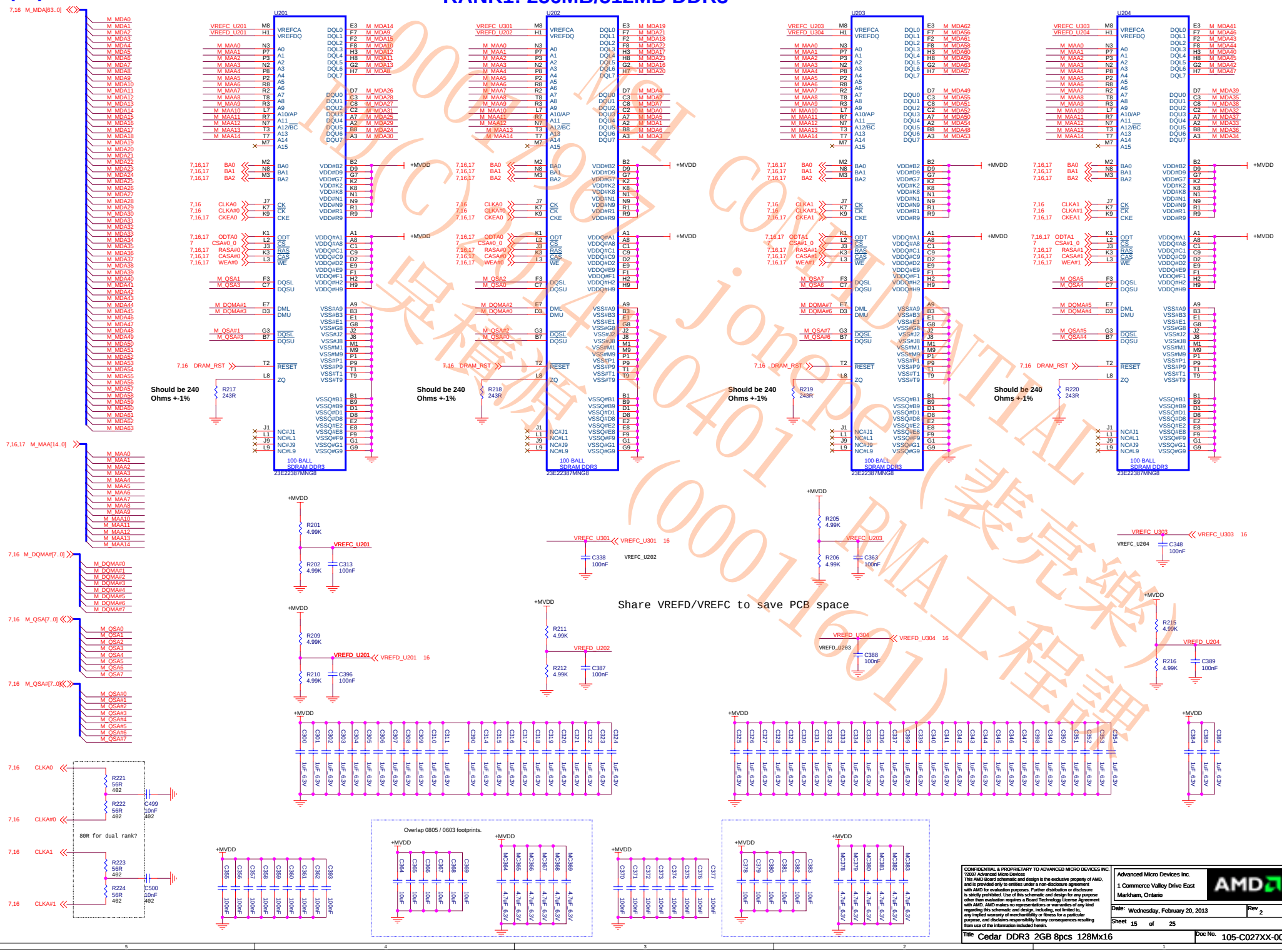


Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, February 08, 2013	Rev 2
Sheet 14 of 25	
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00

(15) DDR3 RANK1

RANK1: 256MB/512MB DDR3

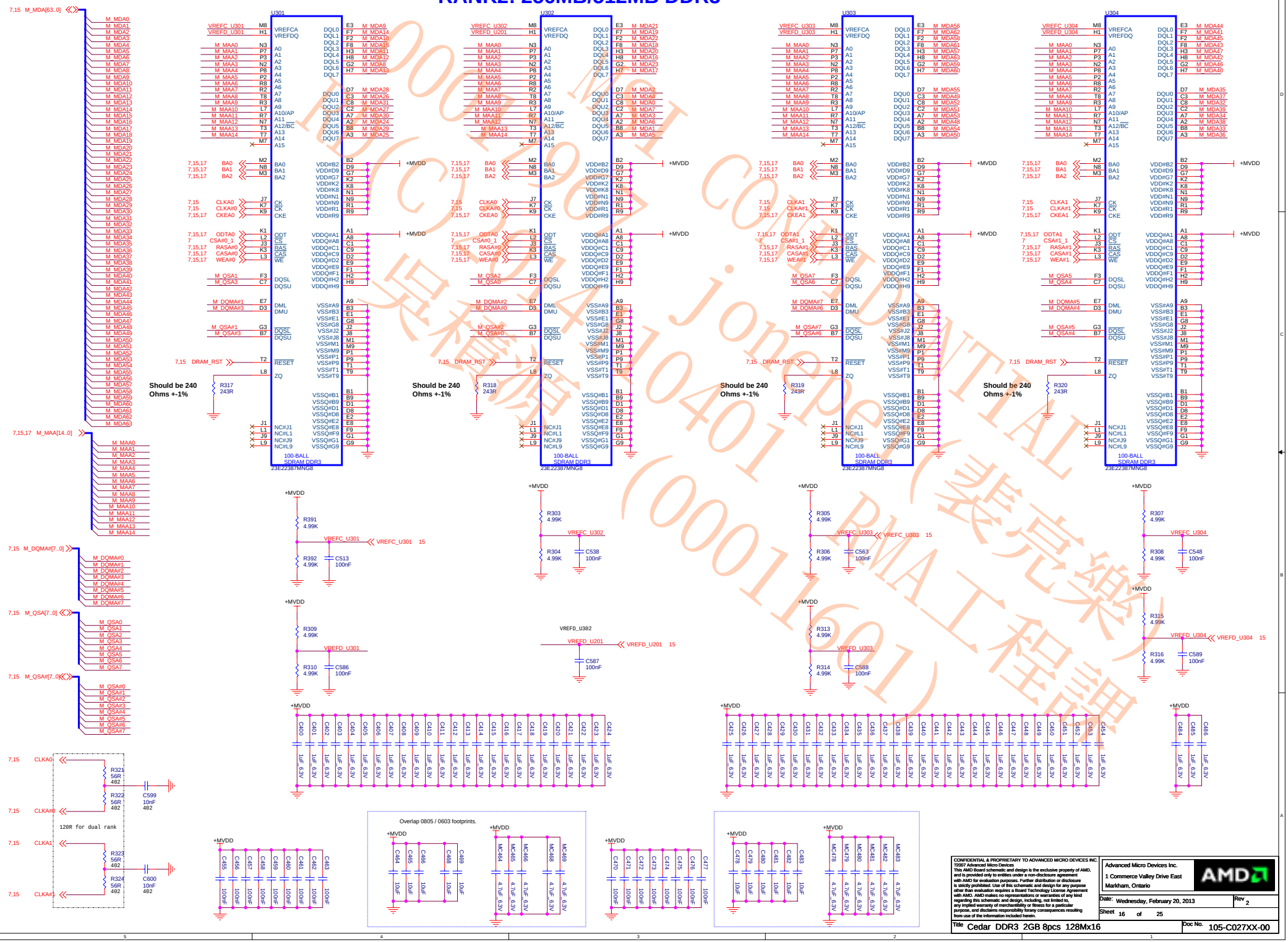


Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Wednesday, February 20, 2013 Rev 2
Sheet 15 of 25
Title Cedar DDR3 2GB 8pcs 128Mx16 Doc No. 105-C027XX-00

(16) DDR3 RANK2

RANK2: 256MB/512MB DDR3



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Wednesday, February 20, 2013
Rev	2
Sheet	16 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00

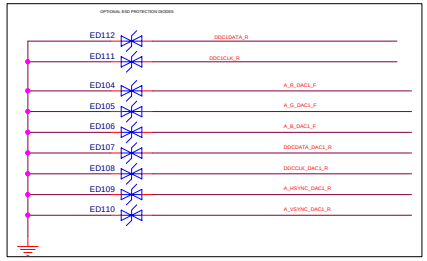
(17) DDR3 Termination

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

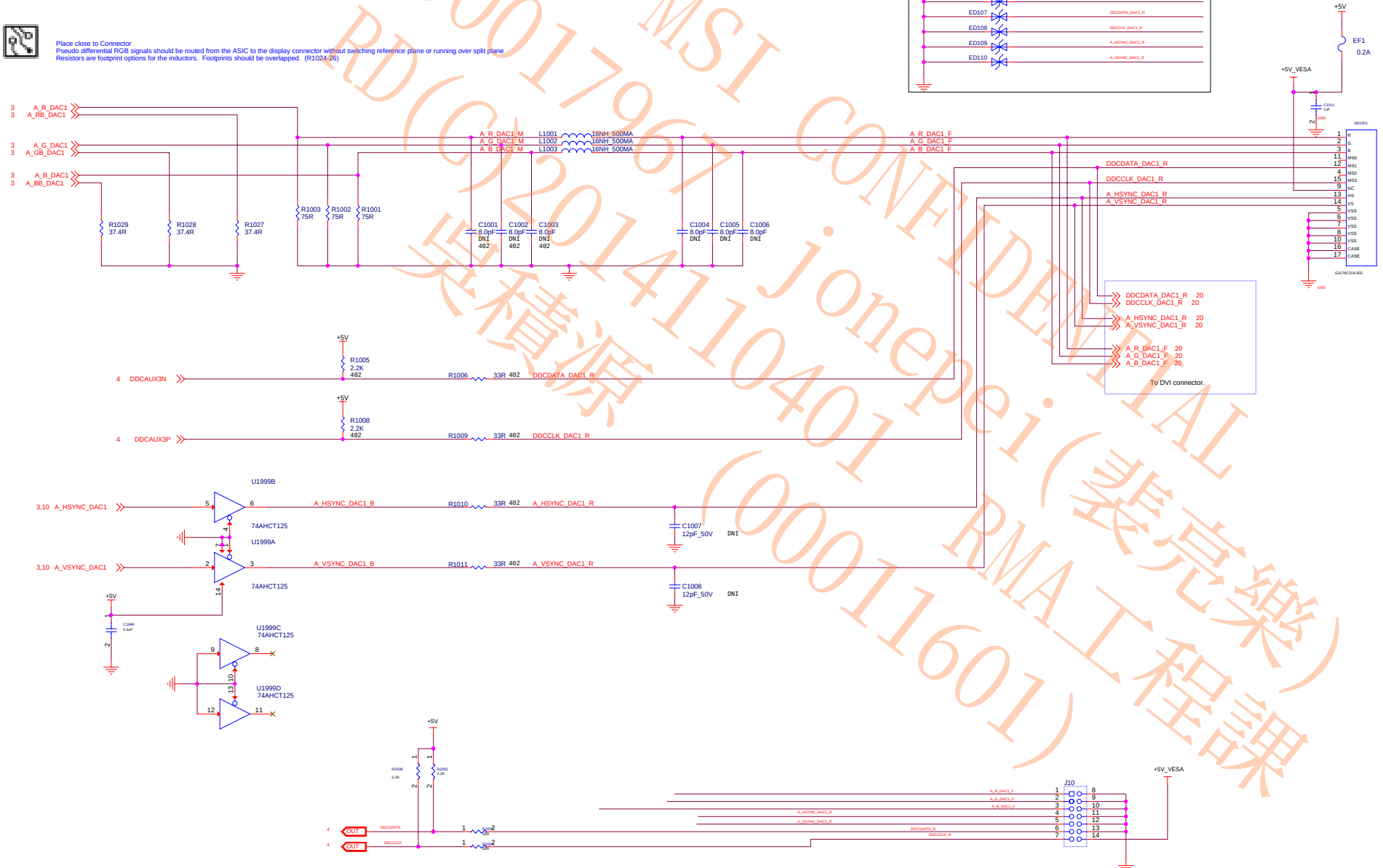
Date: Friday, February 01, 2013	Rev 2
Sheet 17 of 25	
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00

(18) DAC1 OUTPUT

DAC 1 OUTPUT



Place close to Connector
Pseudo differential RGB signals should be routed from the ASIC to the display connector without switching reference plane or running over split plane
Resistors are footprint options for the inductors. Footprints should be overlapped. (R1024-26)



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Friday, January 25, 2013
Rev	2
Sheet	18 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00

(19) DAC2 OUTPUT

DAC 2 OUTPUT

Optional ESD Protection Diods

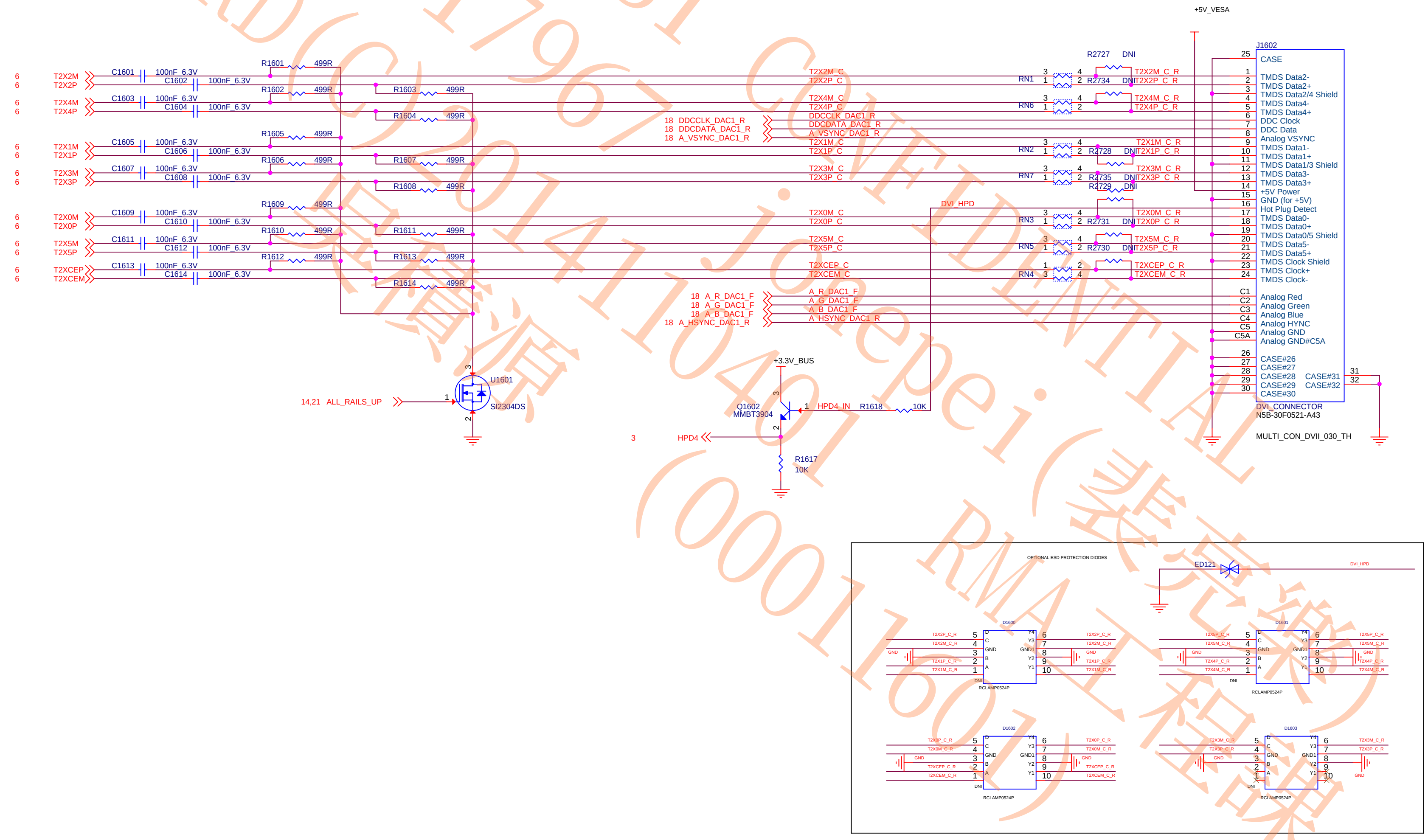
Place near D2002, D2003, D2004, D2005

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, January 25, 2013	Rev 2
Sheet 19 of 25	
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00

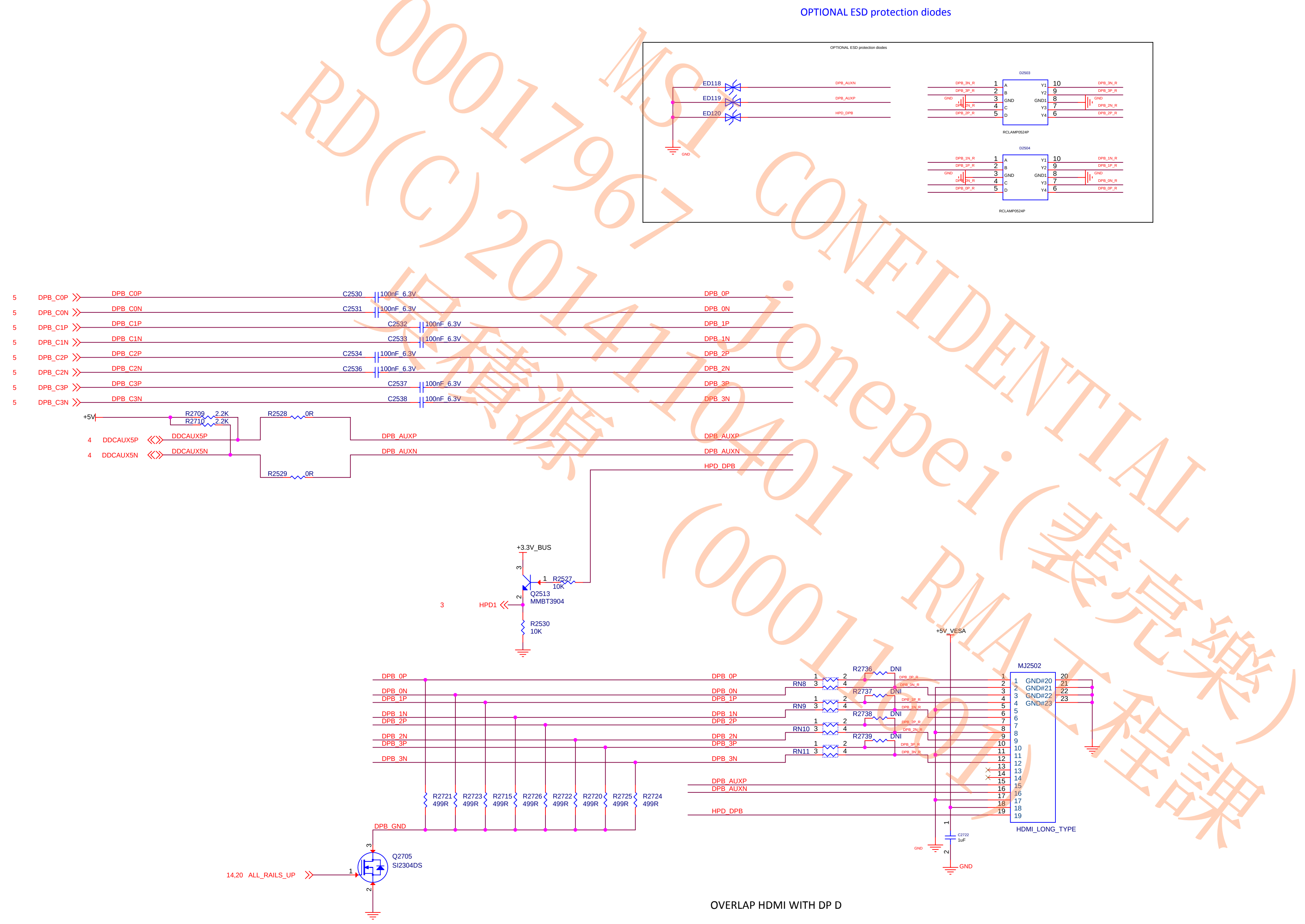
(20) DVI OUTPUT

DPE / DPF OUTPUT



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

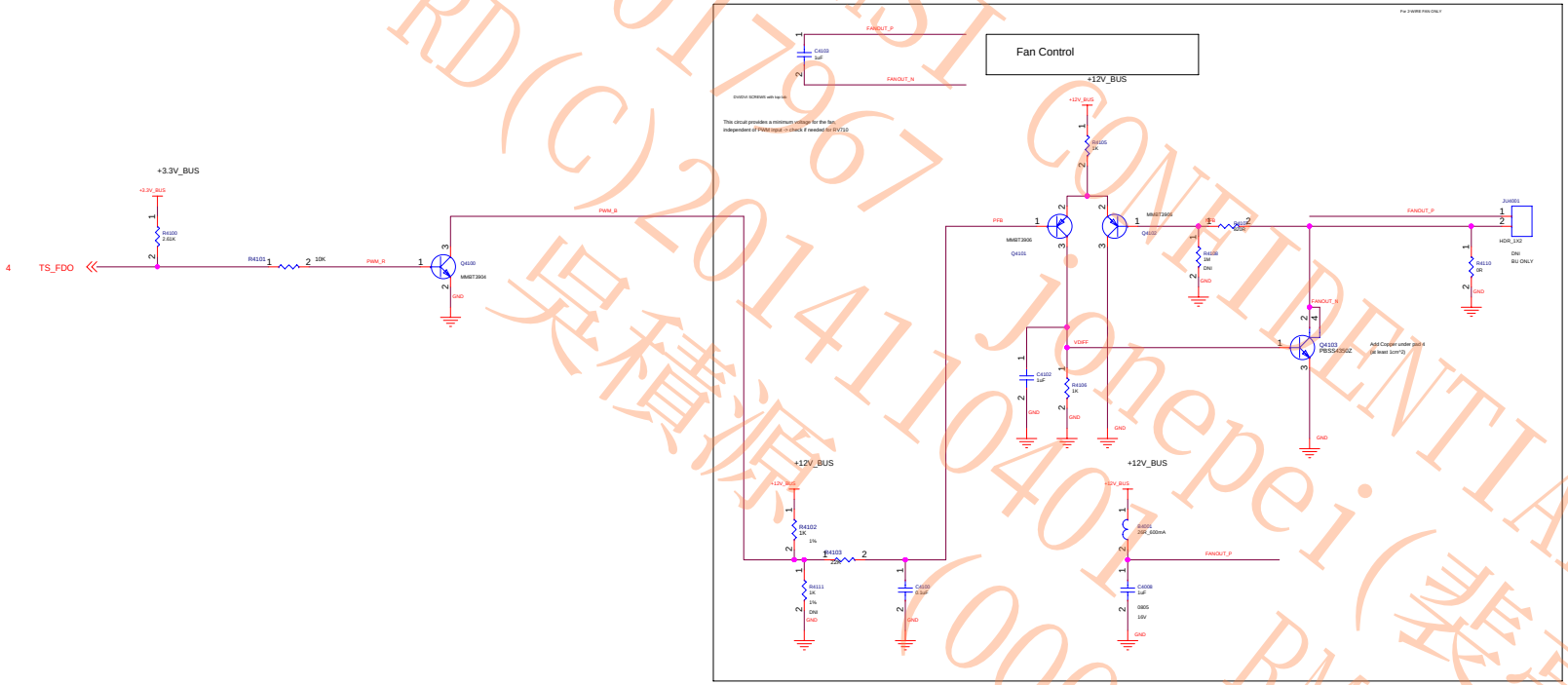
Date:	Friday, February 08, 2013
Rev	1
Sheet	20 of 25
Title	Cedar DDR3 2GB 8pcs 128Mx16
Doc No.	105-C027XX-00B



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

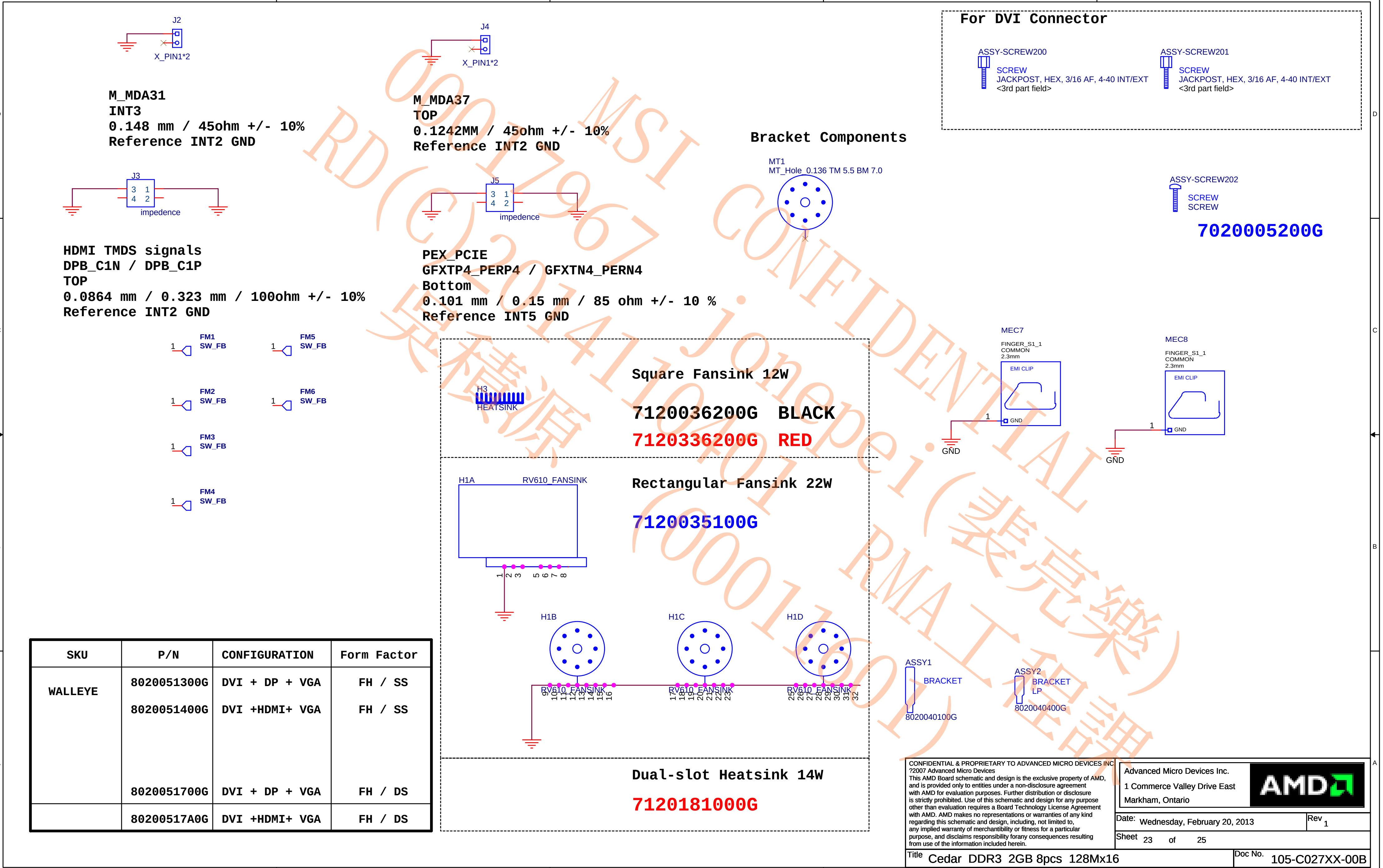
Date: Monday, January 28, 2013		Rev 2	
Sheet 21 of 25			
Title Cedar DDR3 2GB 8pcs 128Mx16		Doc No. 105-C027XX-00B	

(22) Thermal Management



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Thursday, February 07, 2013	Rev 2
Sheet 22 of 25	
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00



SKU	P/N	CONFIGURATION	Form Factor
WALLEYE	8020051300G	DVI + DP + VGA	FH / SS
	8020051400G	DVI +HDMI+ VGA	FH / SS
	8020051700G	DVI + DP + VGA	FH / DS
	80200517A0G	DVI +HDMI+ VGA	FH / DS

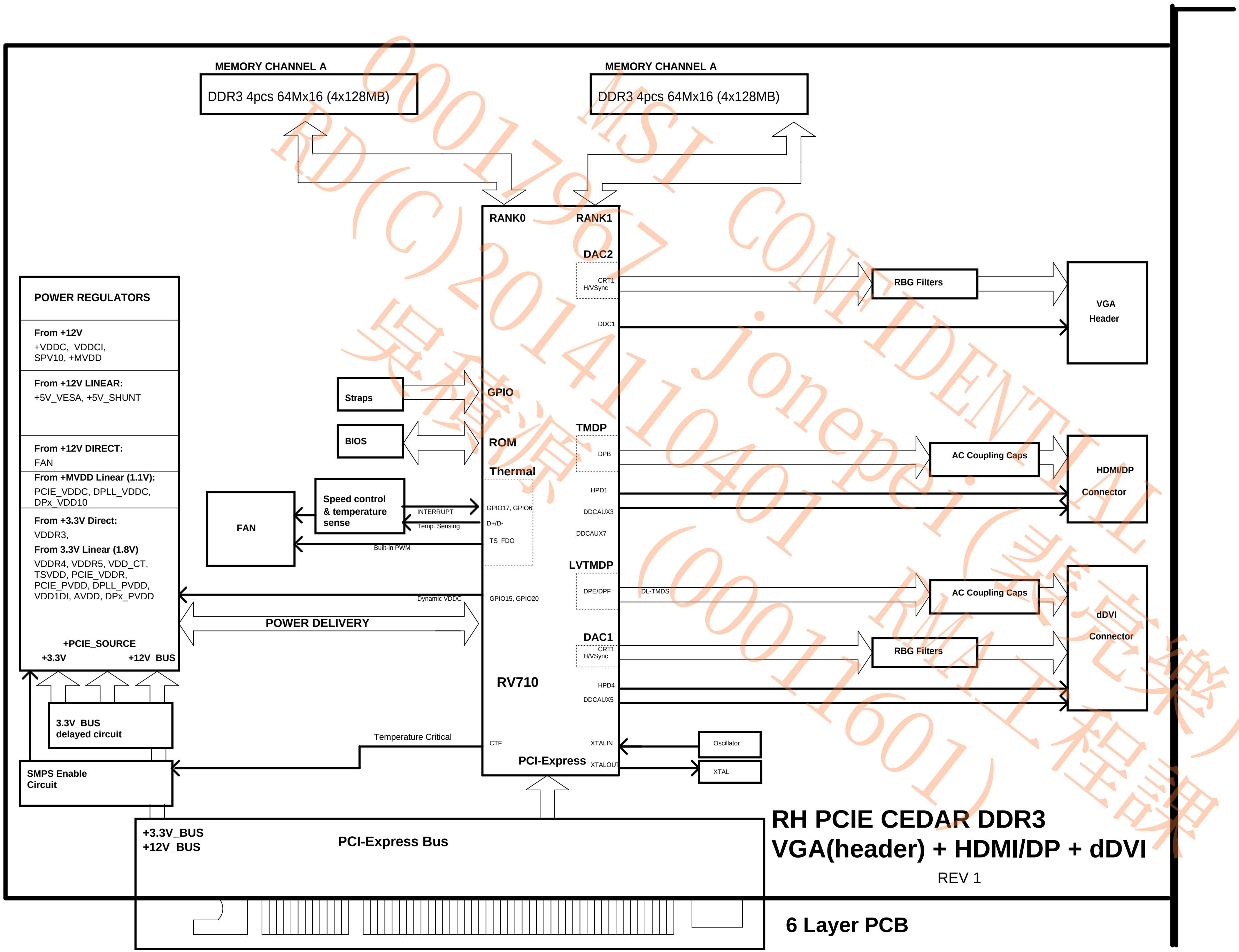
Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Wednesday, February 20, 2013 Rev 1

Sheet 23 of 25

Title Cedar DDR3 2GB 8pcs 128Mx16

Doc No. 105-C027XX-00B



Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date: Friday, January 25, 2013		Rev 2
Sheet 24 of 25		
Title Cedar DDR3 2GB 8pcs 128Mx16	Doc No. 105-C027XX-00	

Title	Schematic No.	Date:
Cedar DDR3 2GB 8pcs 128Mx16	105-C027XX-00	Friday, January 25, 2013

REVISION HISTORY

NOTE: **This schematic represents the PCB, it does not represent any specific SKU.**
For Stuffing options (component values, DNI , ? please consult the product specific BOM.
Please contact AMD representative to obtain latest BOM closest to the application desired.

Rev 2

Cedar 1GB DDR3 Walleye

Sch Rev	PCB Rev	Date	REVISION DESCRIPTION
0	00A	2008.12.30	Sch no change. just modify HDMI connector location on PCB
1	00B	2009.08.24	Page 1:remove C1,C2,R3,U3,Add Q1,Q2 Page 7:Add C97,C98 Page 10:Add MR43,MR51,MR52,MR56 Page 18:Add L1004,L1005,L1006 Page 19:Remove R2013,R2014,R2015,R2016,Q2001,Q2002
2	00	2009.09.23	Change HDMI/DP DDC line to DDCAUX3