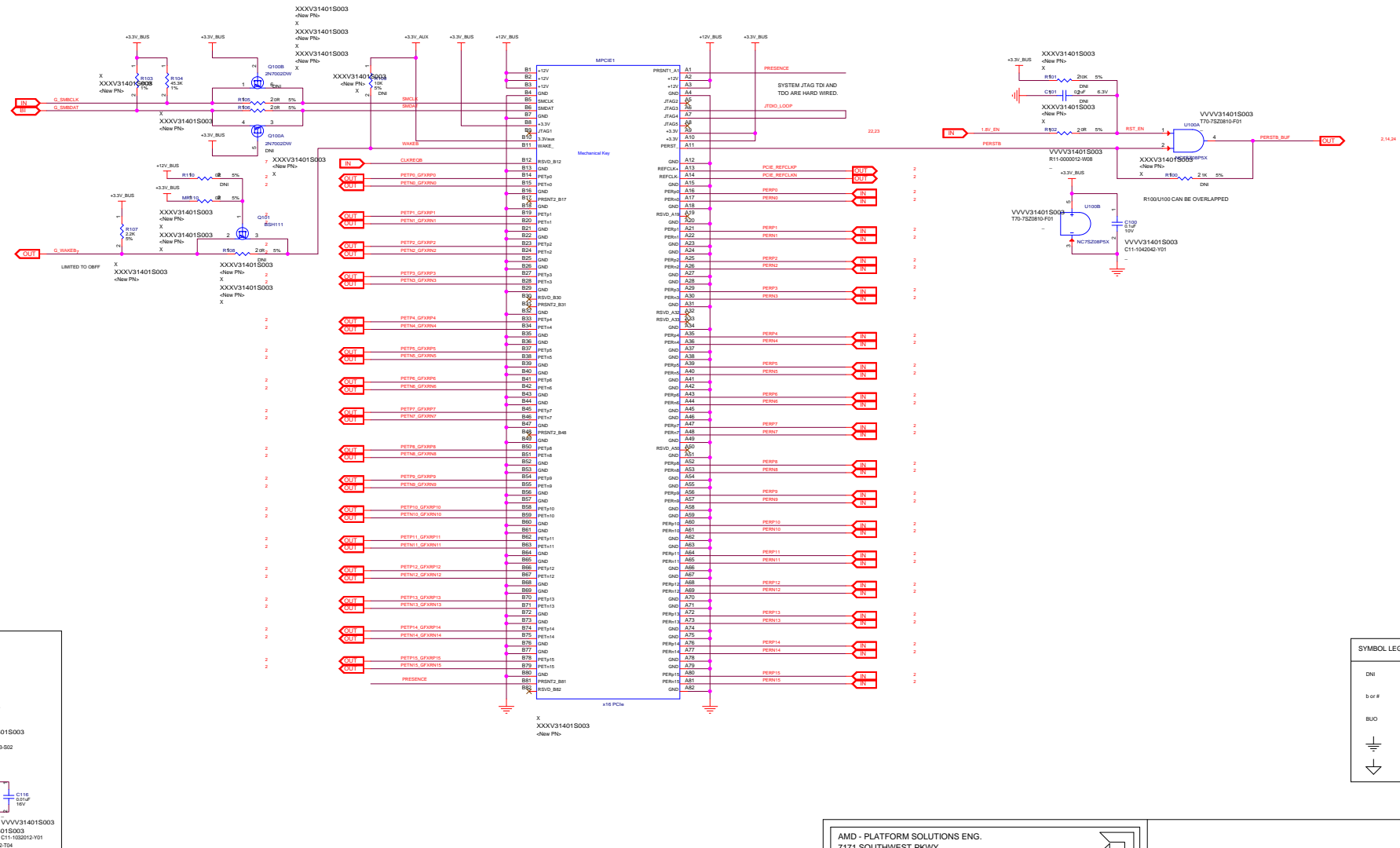


(1) PCI-EXPRESS EDGE CONNECTOR



AMD - PLATFORM SOLUTIONS ENG.  
7171 SOUTHWEST PKWY  
AUSTIN, TX. 78735

SHEET: PCIE CONNECTOR	
DATE: Mon May 12 19:11:52 2014	REV: 01
SHEET NUMBER: 1 OF 25	
DOCUMENT NUMBER: 105-C766xx-00A	



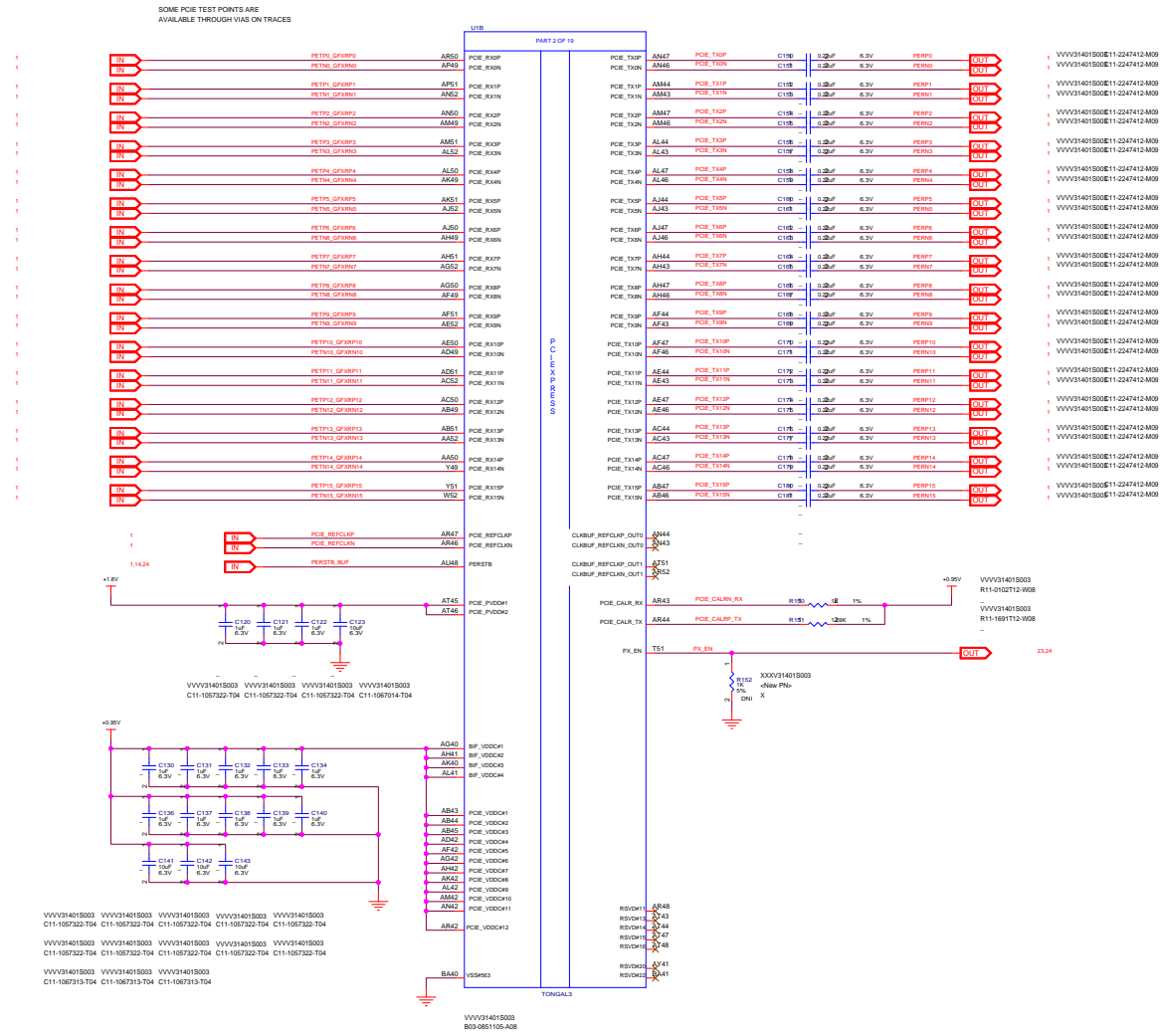
**MICRO-STAR INT'L CO., LTD.**

MS-V314

Size	Rev
Custom	1.0
Date: Tuesday, July 22, 2014	Sheet 1 of 28

TITLE:	Tonga-256 G5 x32
--------	------------------

## (2) PCIE INTERFACE



AMD - PLATFORM SOLUTIONS ENG.  
7171 SOUTHWEST PKWY  
AUSTIN, TX. 78735



**MICRO-STAR INT'L CO., LTD.**

MS-V314

Size	Rev
Custom	1.0
Date: Tuesday, July 22, 2014	Sheet 2 of 28

SHEET: GPU PCIE

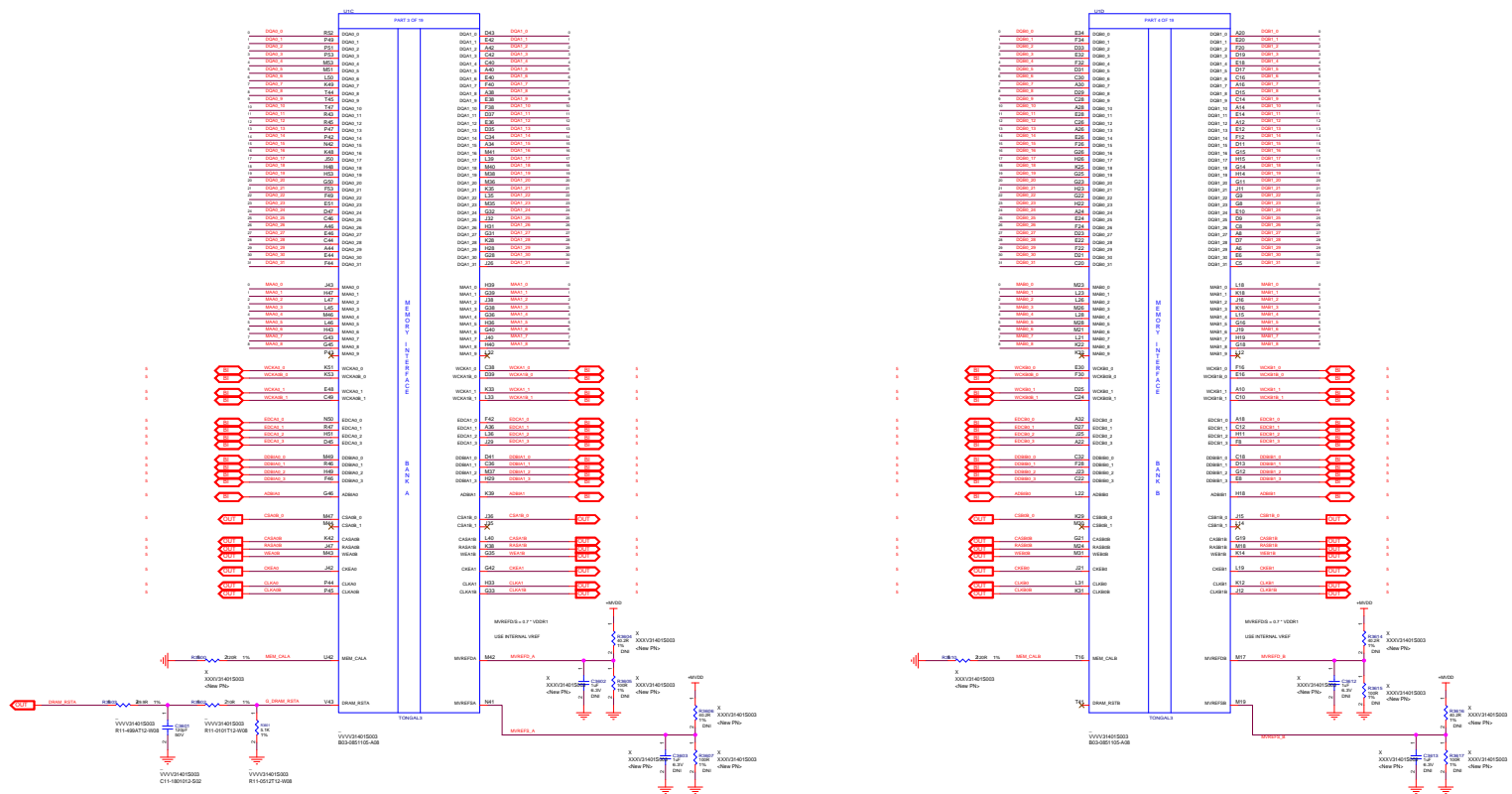
DATE:	Mon May 12 19:11:54 2014	REV:	01
-------	--------------------------	------	----

SHEET NUMBER: 2 OF 25

DOCUMENT NUMBER: 105-C766xx-00A

TITLE:	Tonga-256 G5 x32
--------	------------------

(3) MEM INTERFACE CH AB



AMD - PLATFORM SOLUTIONS ENG.  
7171 SOUTHWEST PKWY  
AUSTIN, TX. 78735

SHEET: GPU MEM CH AB

DATE: Mon May 12 10:11:52 2014

SHEET NUMBER: 3 OF 25

DOCUMENT NUMBER: 105.C766a-05A

MICRO-STAR INT'L CO., LTD.

MS-V314

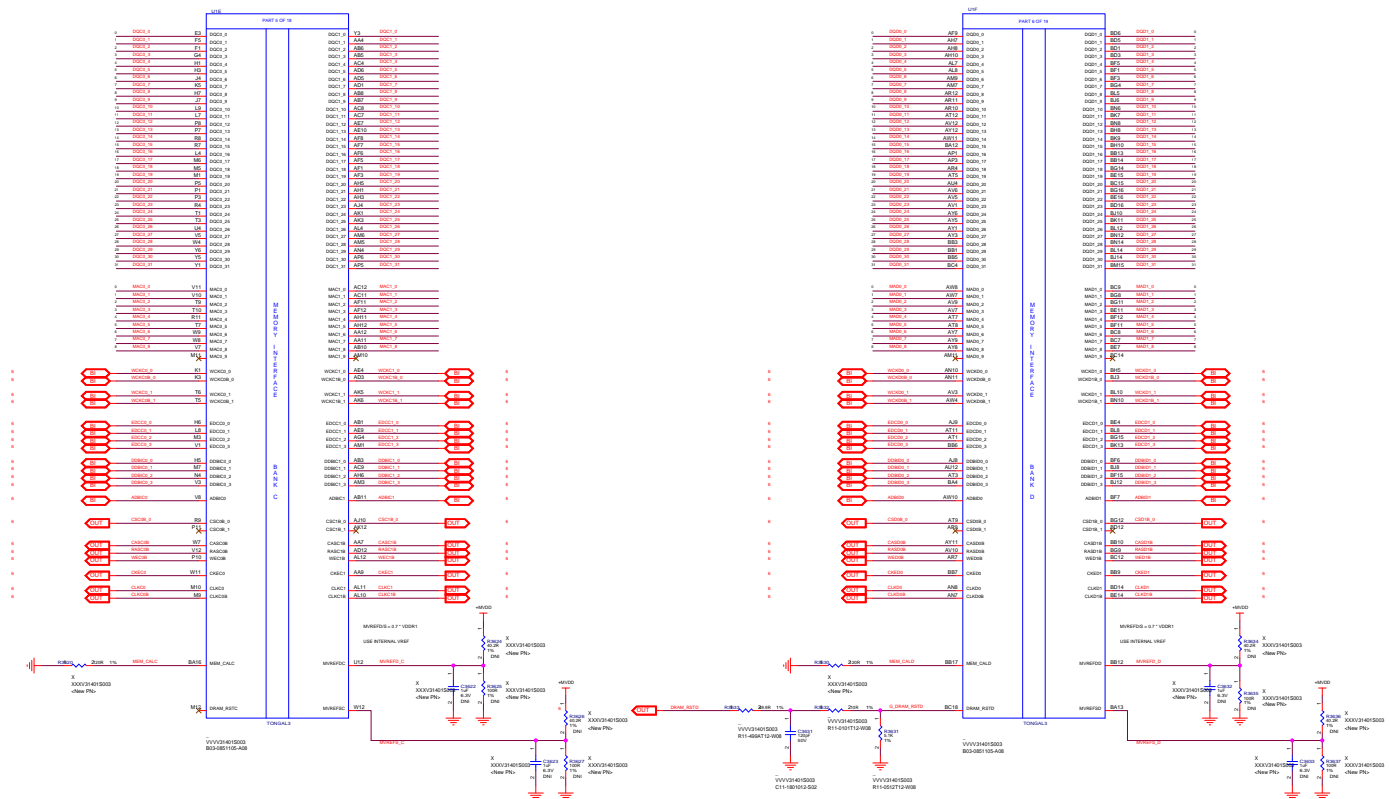
Rev 1.0

Date: Tuesday, May 22 2014

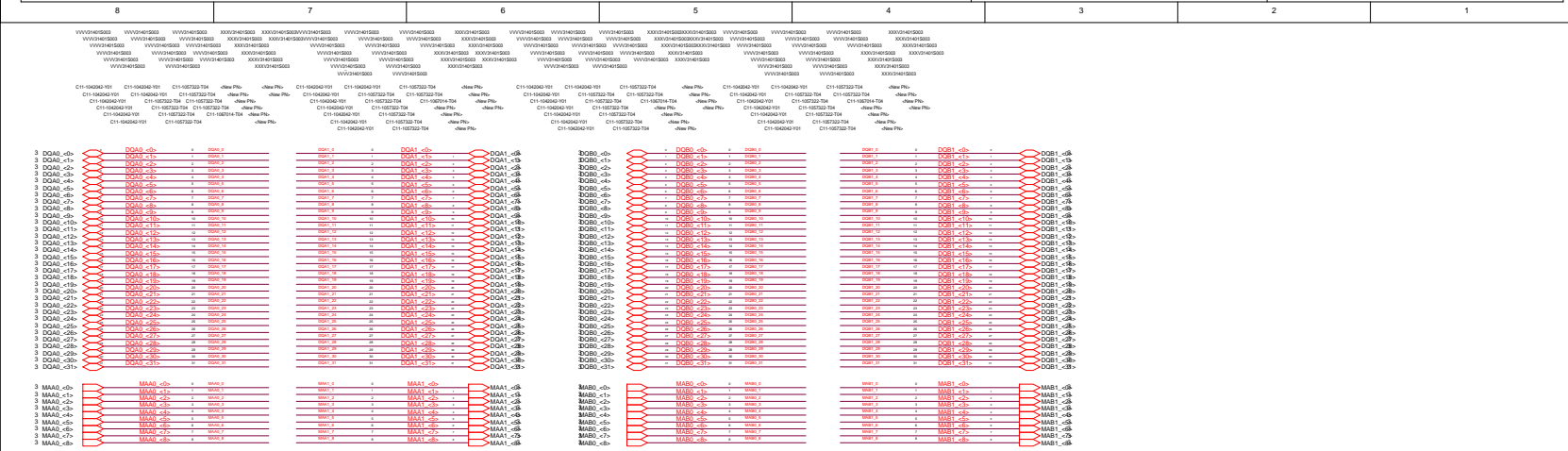
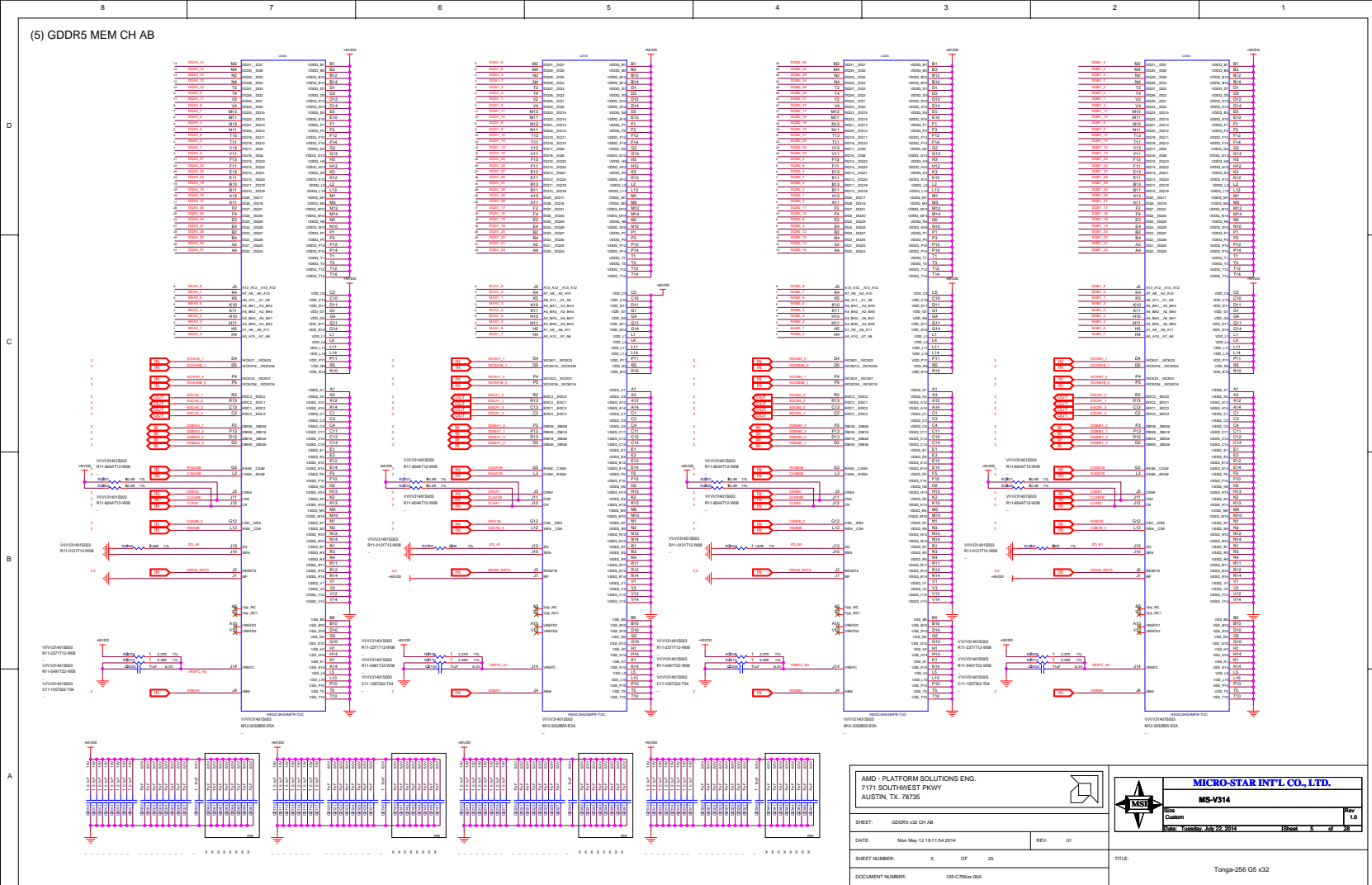
Sheet 3 of 25

TITLE: Tonga-256 G5 x32

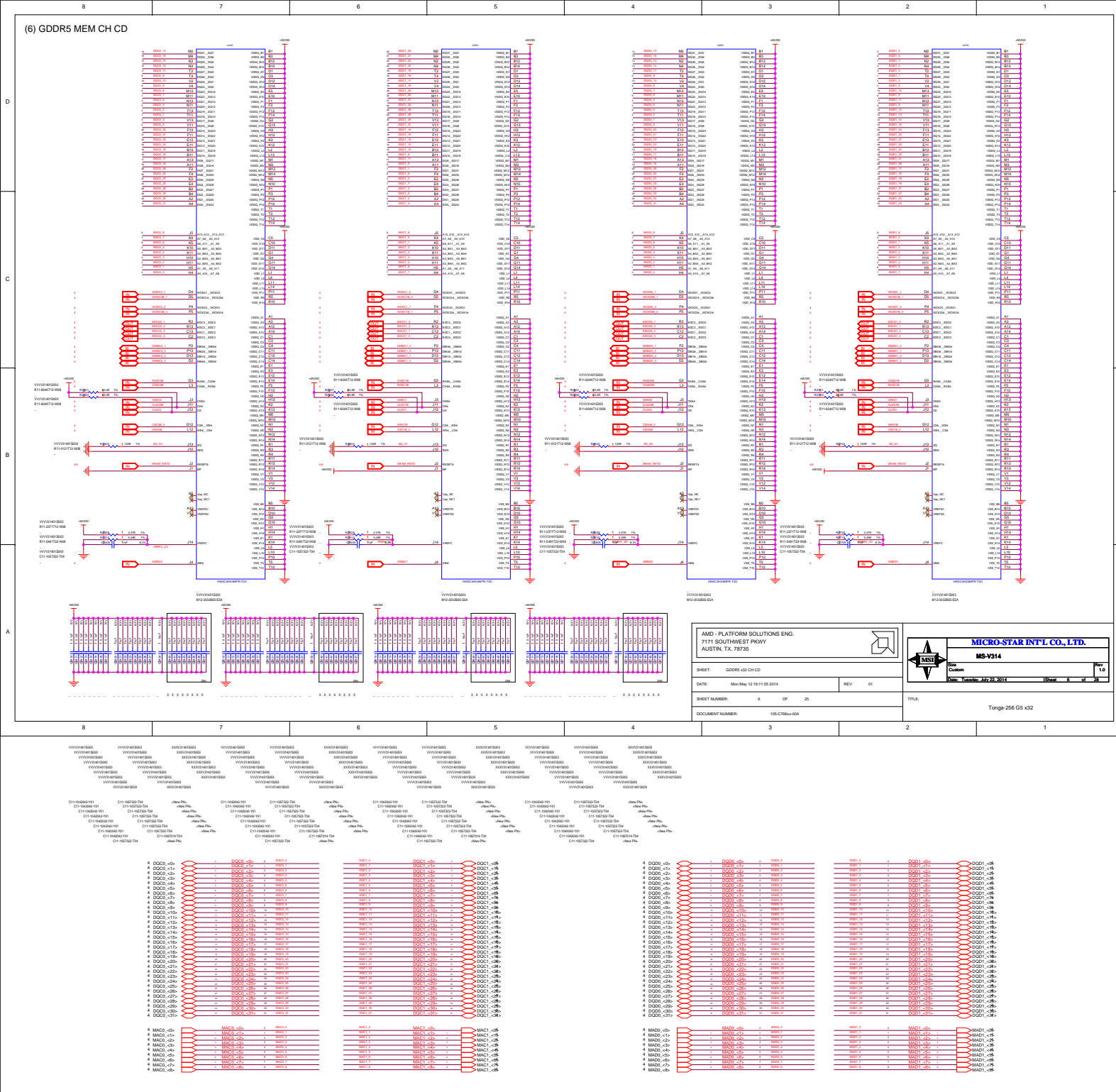
(4) MEM INTERFACE CH CD



(5) GDDR5 MEM CH AB



(6) GDDR5 MEM CH CD



AMD - PLATFORM SOLUTIONS ENG.  
7117 SOUTHWEST PKWY  
AUSTIN, TX 78735

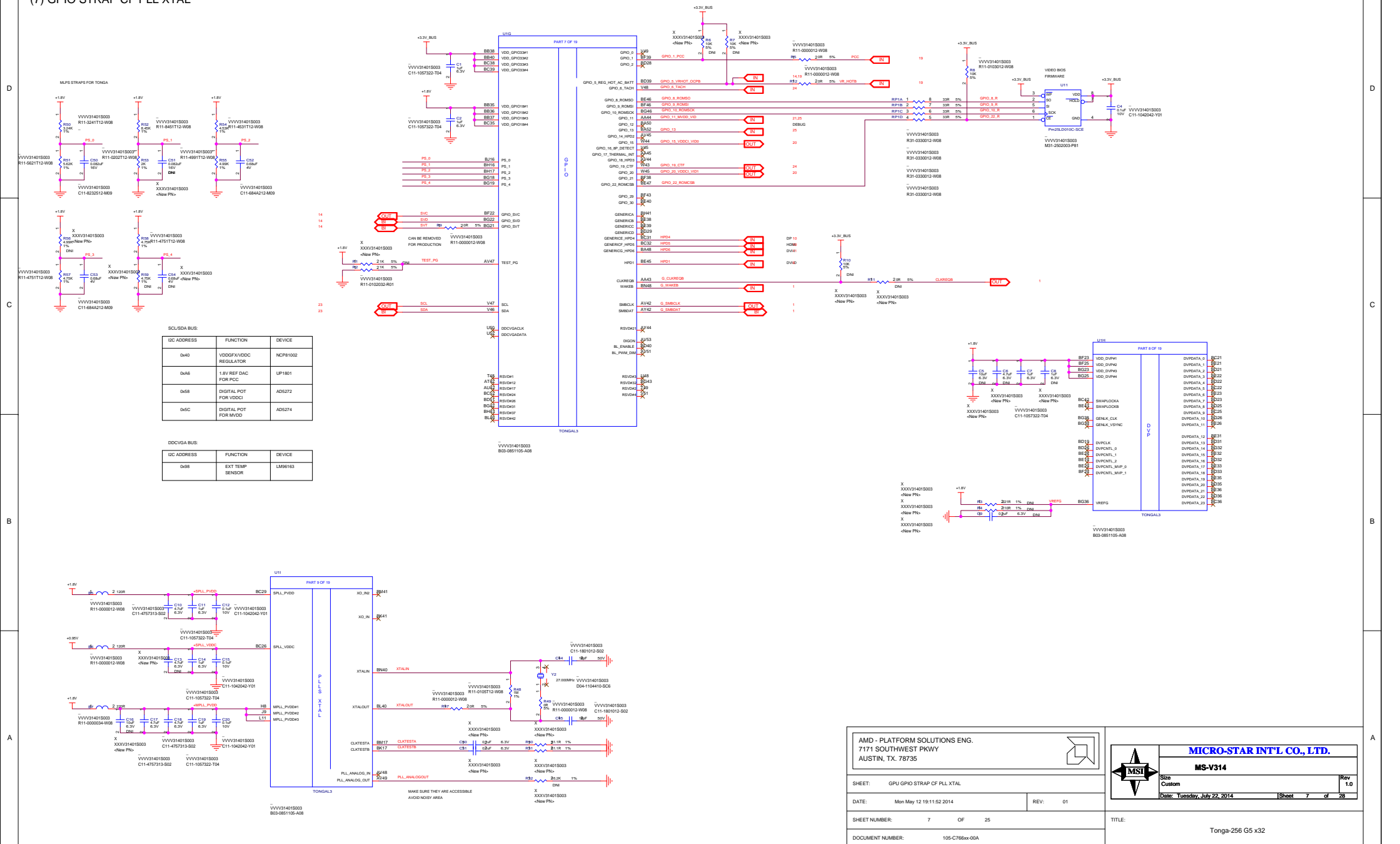
SHEET: GDDR5 v2 CH CD  
DATE: Mon May 12 19:15:55 2014  
REV: 01

SHEET NUMBER: 6 OF 25  
DOCUMENT NUMBER: 105-C7Mem-0A

**MICRO-STAR INT'L CO., LTD.**  
**MS-V914**  
Rev. 1.0  
Date: Tuesday, July 22, 2014  
Sheet: 6 of 25

MSI  
Tonga 256 G5 v32

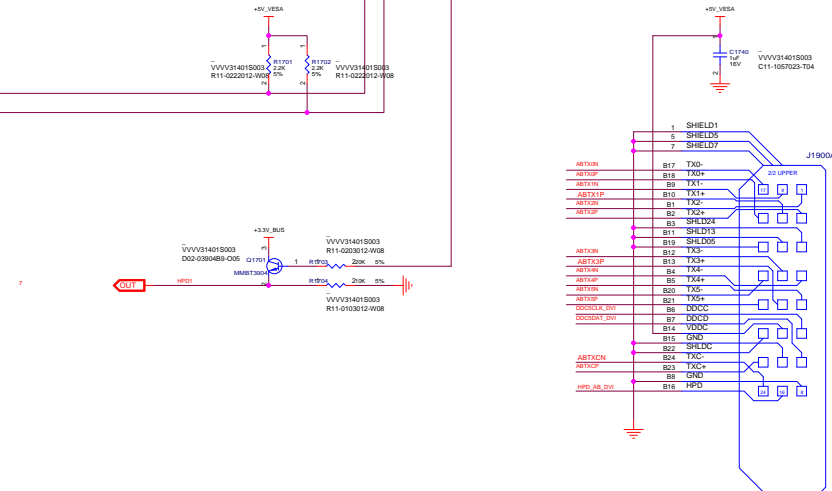
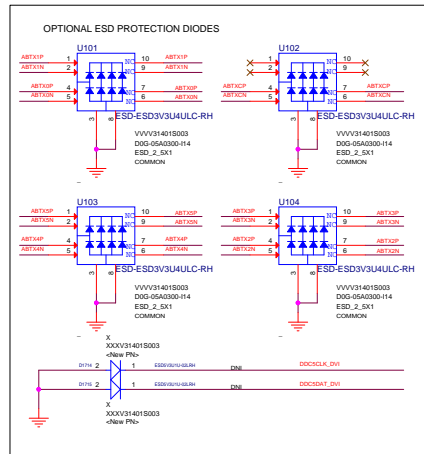
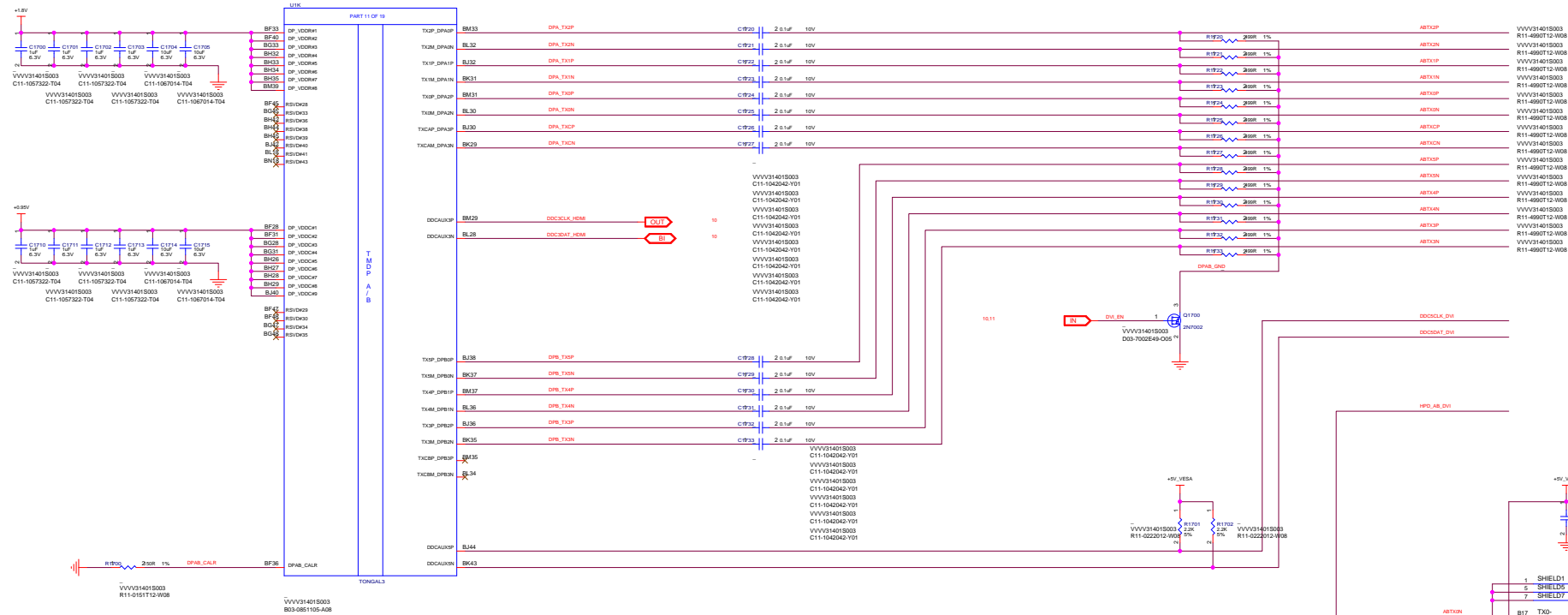
(7) GPIO STRAP CF PLL XTAL







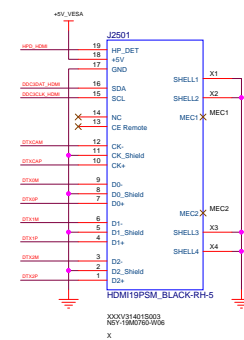
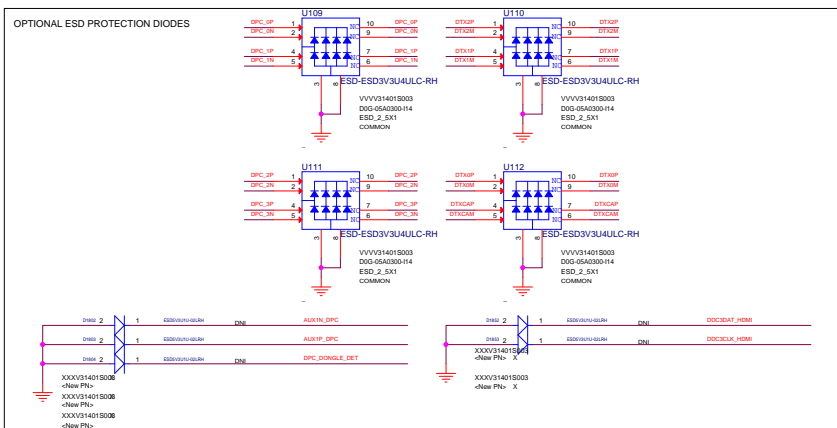
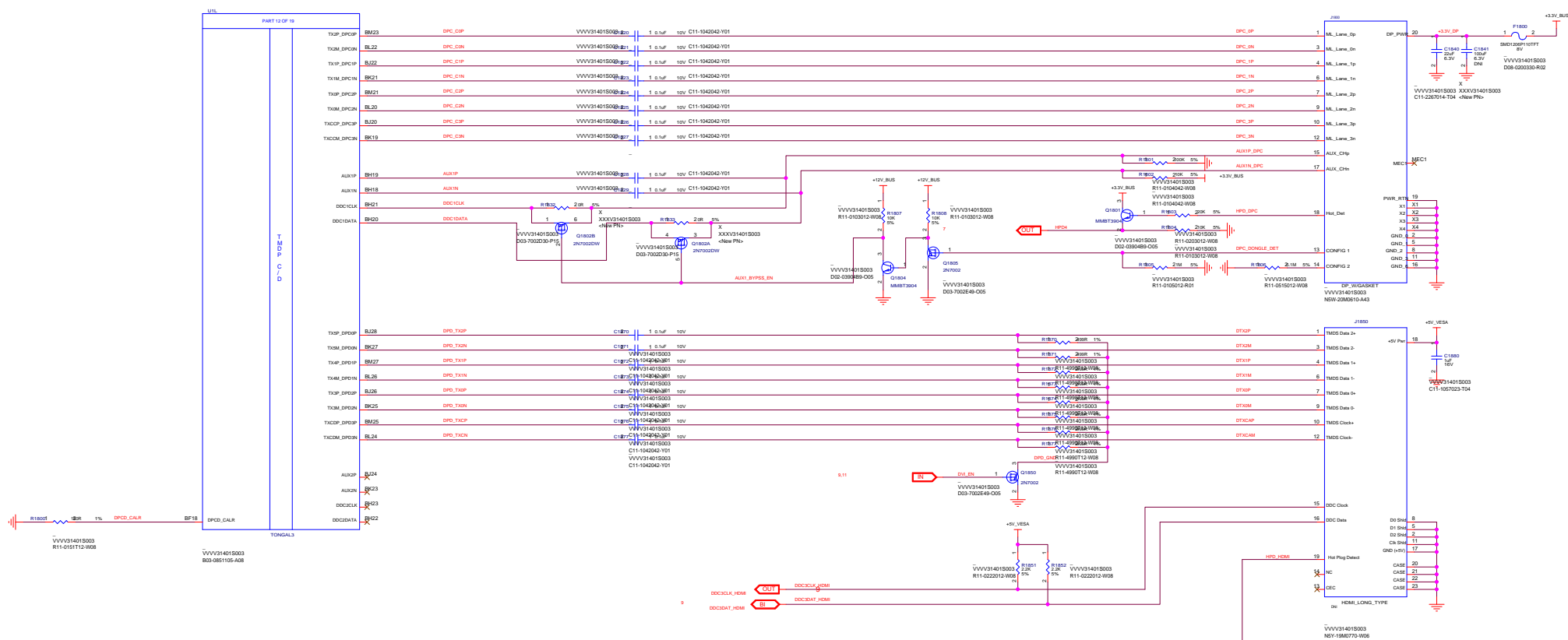




(9) TMDPAB sDVI



AMD - PLATFORM SOLUTIONS ENG. 7171 SOUTHWEST PKWY AUSTIN, TX. 78735			
SHEET: GPU TMDPAB dvi1 TOP		<div>  <div> <b>MICRO-STAR INT'L CO., LTD.</b>  <b>MS-V314</b> </div> </div>	
DATE: Mon May 12 19:11:52 2014		REV: 01	
SHEET NUMBER: 9 OF 25		<div> <div>           Size Custom         </div> <div>           Date: Tuesday, July 22, 2014         </div> </div> <div> <div>Rev 1.0</div> <div>Sheet 9 of 28</div> </div>	
DOCUMENT NUMBER: 105-C766xx-00A		TITLE: Tonga-256 G5 x32	

(10) TMDPCD DP HDMI



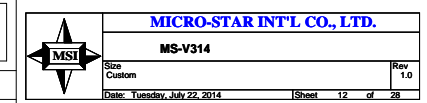
AMD - PLATFORM SOLUTIONS ENG. 7171 SOUTHWEST PKWY AUSTIN, TX. 78735				<div>  <div> <b>MICRO-STAR INT'L CO., LTD.</b>  <b>MS-V314</b>            Size Custom            Date: Tuesday, July 22, 2014           <div>             Sheet 10 of 28           </div> </div> </div>	
SHEET: GPU TMDPDP DP HDMI		REV: 01		TITLE:	
DATE: Mon May 12 11:52:2014				Tonga:256 GS x32	
SHEET NUMBER: 10 OF 25					
DOCUMENT NUMBER: 105-C766xx-00A					


## 1

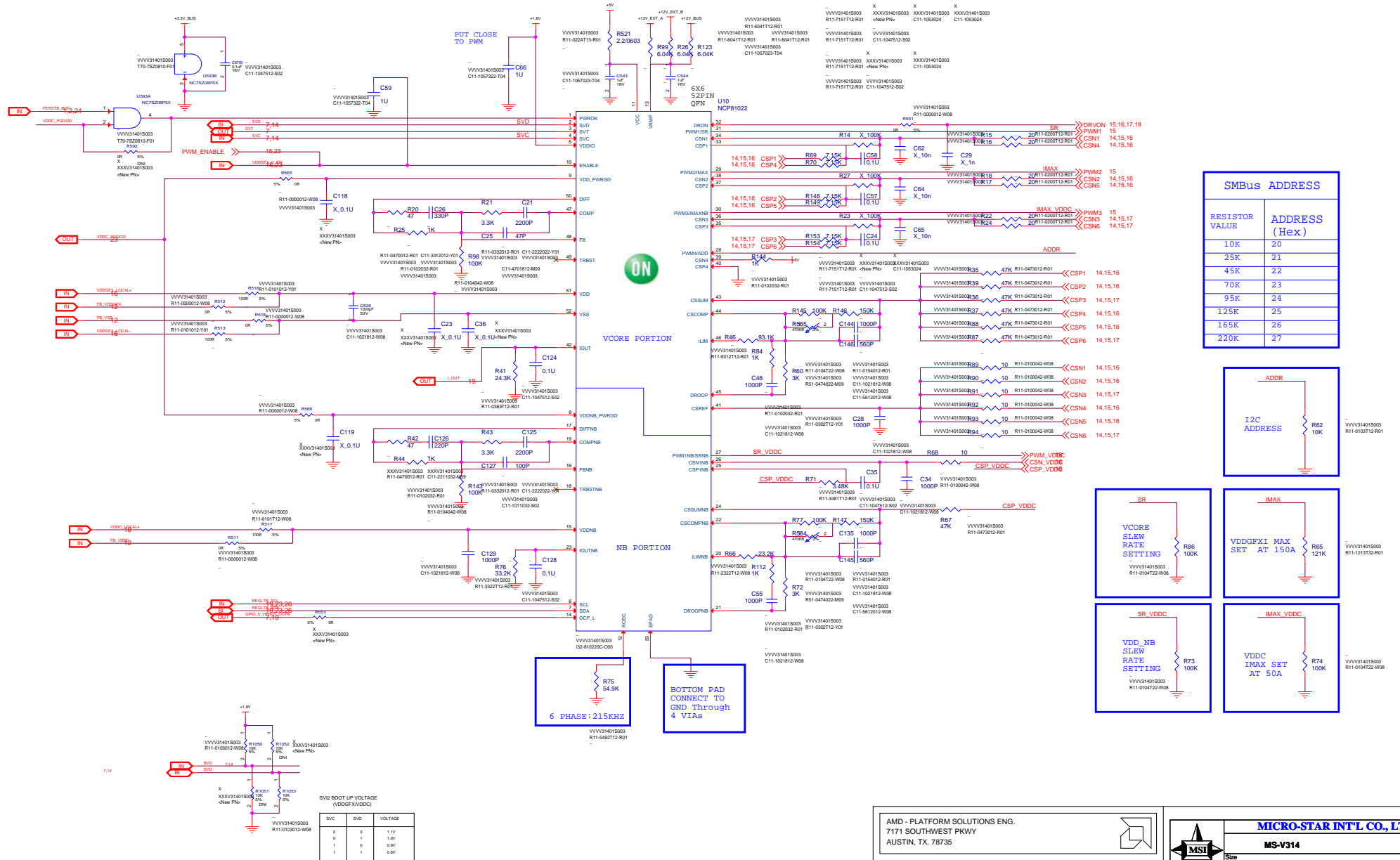
11

1

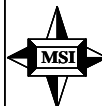
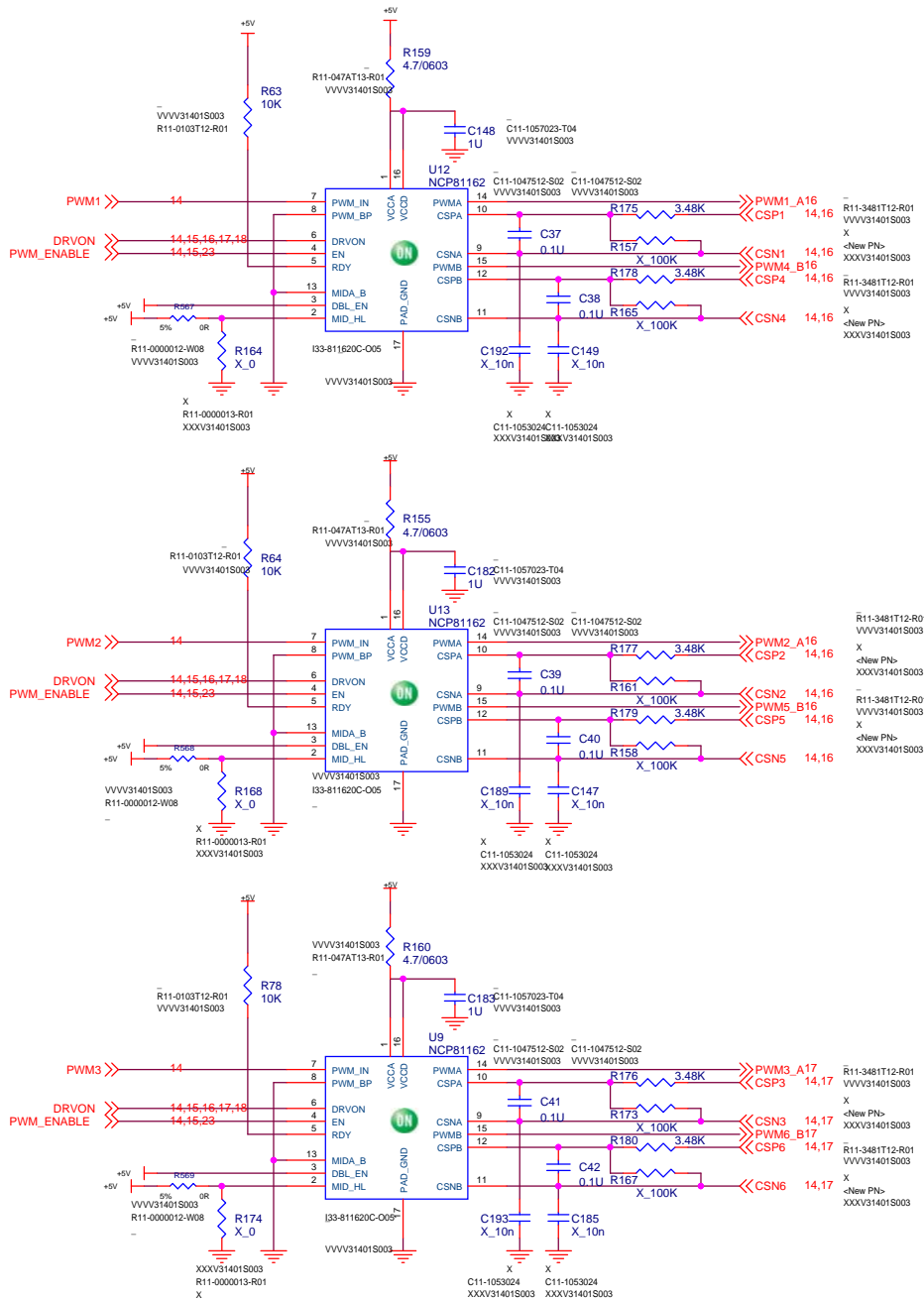
TITLE: Tonga-256 G5 x32



	<b>MICRO-STAR INT'L CO., LTD.</b>		
	<b>MS-V314</b>		
	Size Custom	Date: Tuesday, July 22, 2014	
	Sheet 13 of 28	Rev 1.0	



## (15) PHASE DOUBLERS



**MICRO-STAR INT'L CO., LTD.**

**MS-V314**

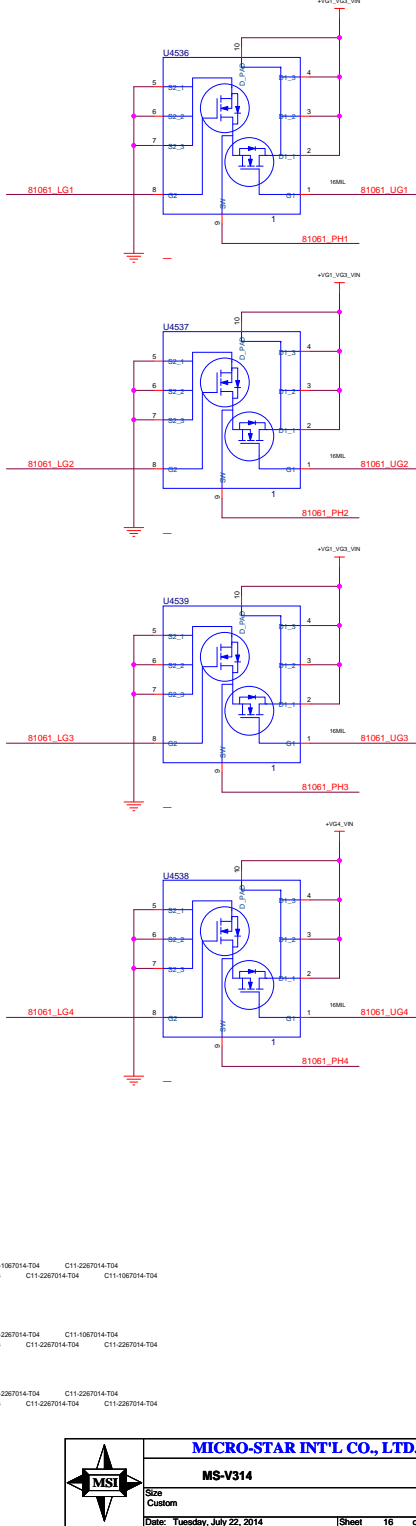
Size	Custom
------	--------

Rev  
1.0

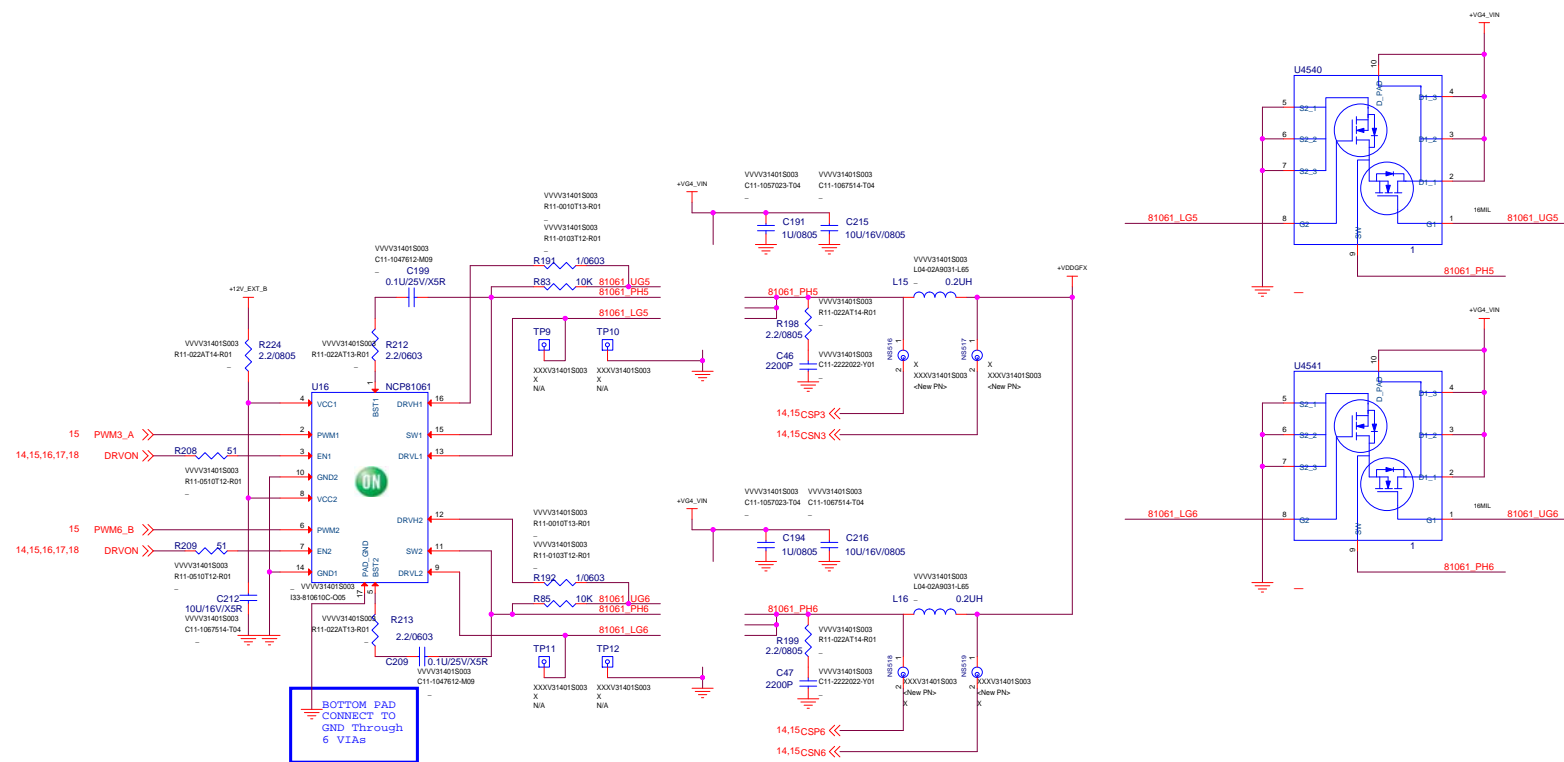
Date: Tuesday, July 22, 2014

Sheet 15 of 28

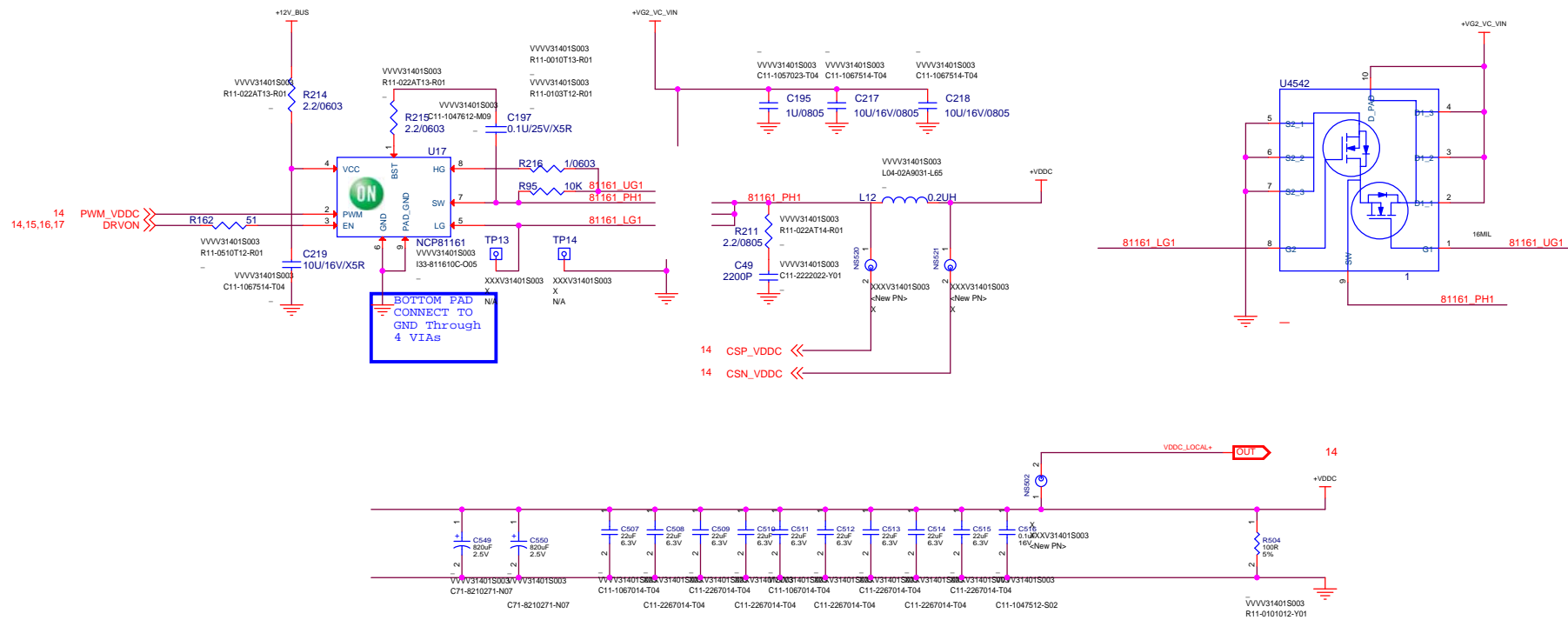
## (16) VDDGFX POWER STAGE 1







### (18) VDDC OUTPUT STAGE



**MICRO-STAR INT'L CO., LTD.**

MS-V314

Size	Rev
Custom	1.0

Date: Tuesday, July 22, 2014	Sheet 18 of 28
------------------------------	----------------



1



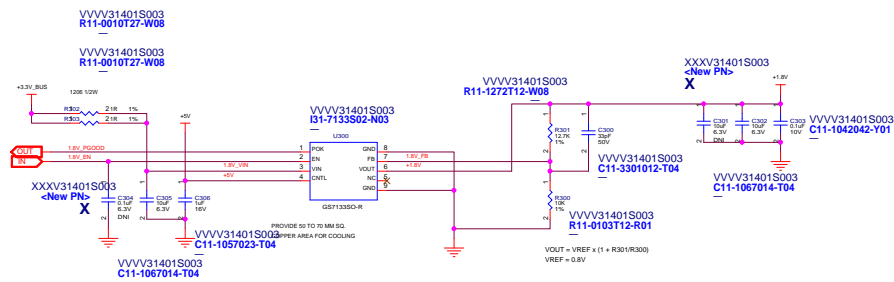
TITLE: Tonga-256 G5 x32

TITLE: Tonga-256 G5 x32

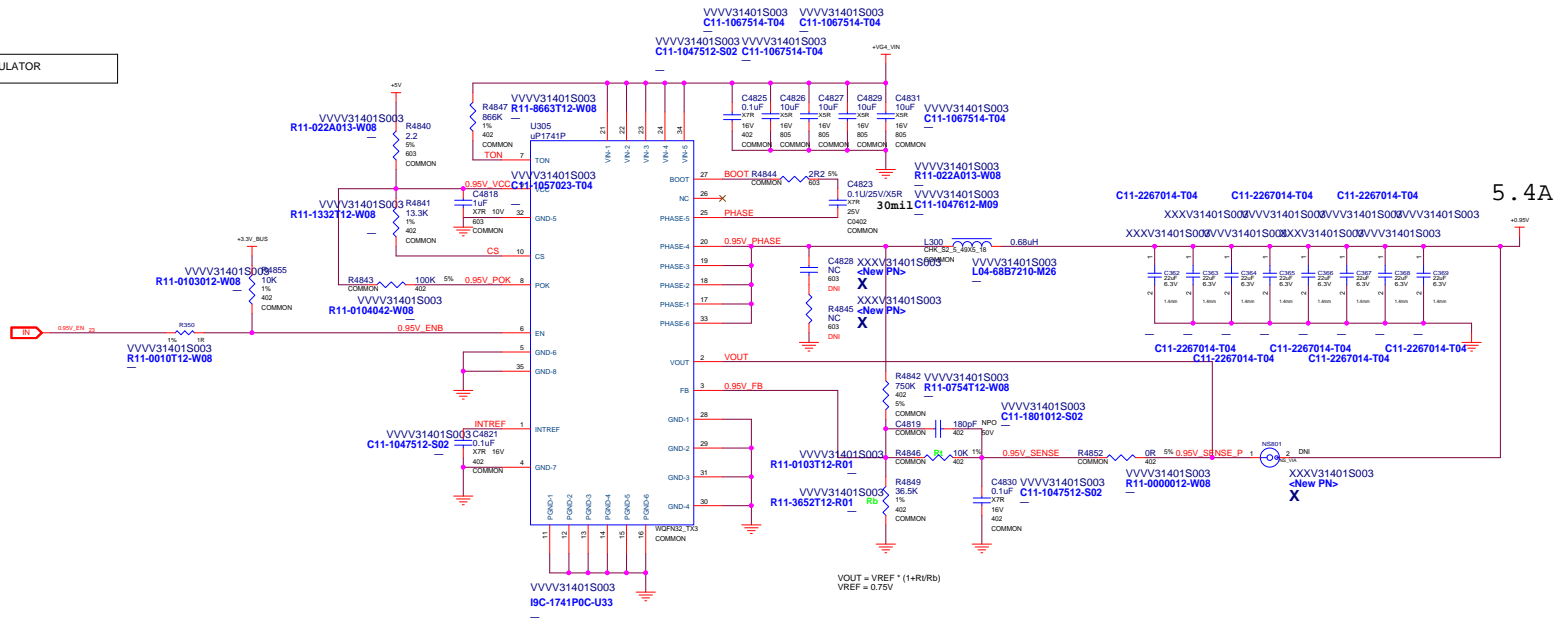


(22) SMALL RAIL REGULATOR

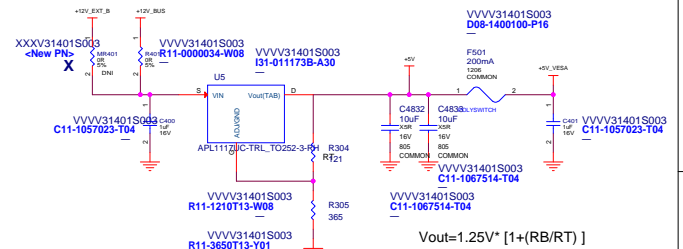
### 1.8V REGULATOR





0.95V REGULATOR



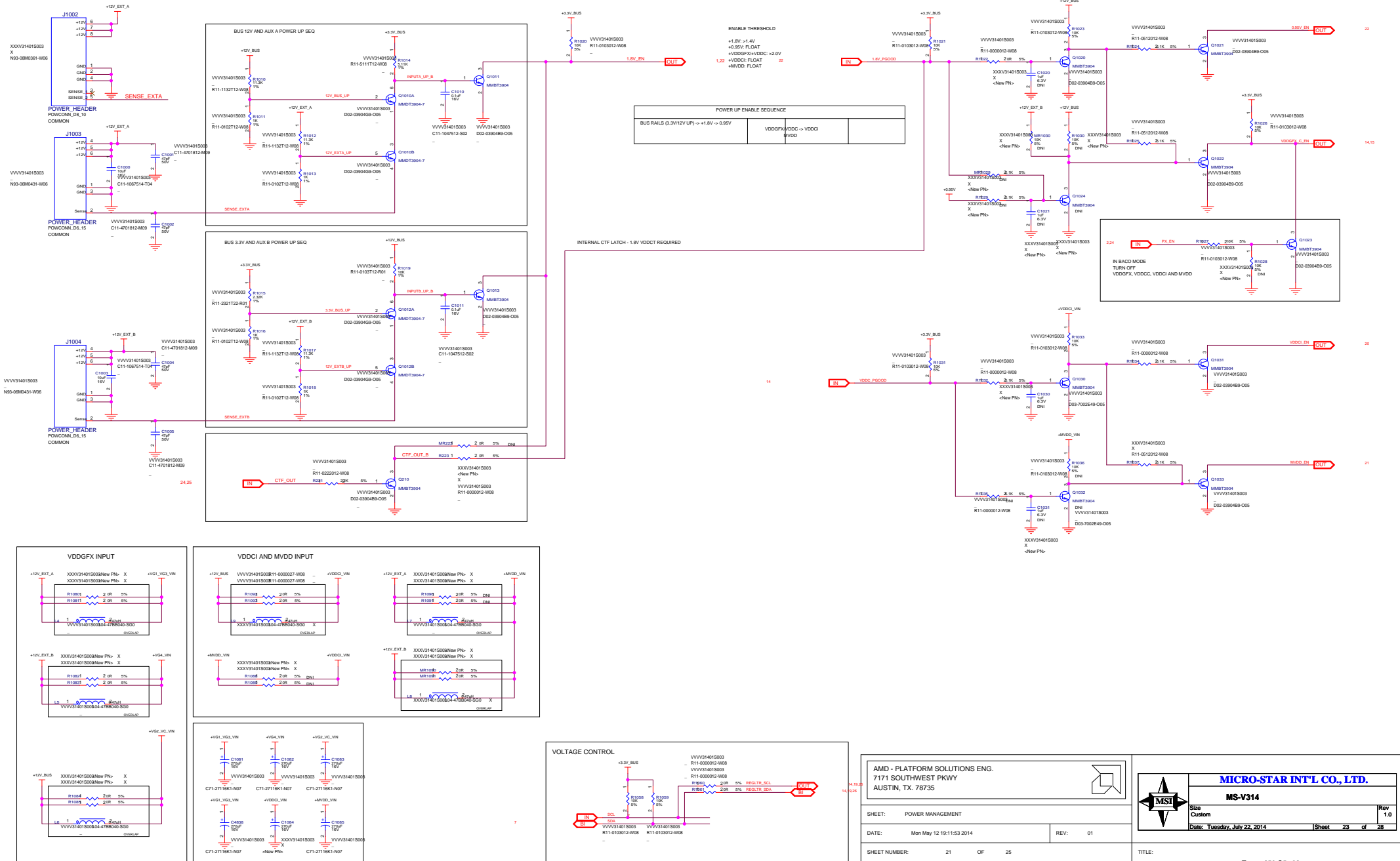
5V REGULATOR



<div>AMD - PLATFORM SOLUTIONS ENG. 7171 SOUTHWEST PKWY AUSTIN, TX. 78735</div>		<table style="width: 100%; border-collapse: collapse;"><tr><td colspan="2" style="text-align: center; padding: 5px;"><b>MICRO-STAR INT'L CO., LTD.</b></td></tr><tr><td colspan="2" style="text-align: center; padding: 5px;"><b>MS-V314</b></td></tr><tr><td style="width: 80%; padding: 5px;">Size Custom</td><td style="width: 20%; padding: 5px;">Rev 1.0</td></tr><tr><td style="padding: 5px;">Date: <u>Tuesday, July 22, 2014</u></td><td style="padding: 5px;">Sheet <u>22</u> of <u>28</u></td></tr></table>	<b>MICRO-STAR INT'L CO., LTD.</b>		<b>MS-V314</b>		Size Custom	Rev 1.0	Date: <u>Tuesday, July 22, 2014</u>	Sheet <u>22</u> of <u>28</u>				
<b>MICRO-STAR INT'L CO., LTD.</b>														
<b>MS-V314</b>														
Size Custom	Rev 1.0													
Date: <u>Tuesday, July 22, 2014</u>	Sheet <u>22</u> of <u>28</u>													
<table style="width: 100%;"><tr><td style="width: 30%;">SHEET: SMALL RAIL REGULATOR</td><td style="width: 30%;"></td><td style="width: 40%;">REV: 01</td></tr><tr><td colspan="3" style="padding: 5px;">DATE: <u>Mon May 12 19:15:23 2014</u></td></tr><tr><td colspan="3" style="padding: 5px;">SHEET NUMBER: <u>20</u> OF <u>25</u></td></tr><tr><td colspan="3" style="padding: 5px;">DOCUMENT NUMBER: <u>105-C768x-00A</u></td></tr></table>			SHEET: SMALL RAIL REGULATOR		REV: 01	DATE: <u>Mon May 12 19:15:23 2014</u>			SHEET NUMBER: <u>20</u> OF <u>25</u>			DOCUMENT NUMBER: <u>105-C768x-00A</u>		
SHEET: SMALL RAIL REGULATOR		REV: 01												
DATE: <u>Mon May 12 19:15:23 2014</u>														
SHEET NUMBER: <u>20</u> OF <u>25</u>														
DOCUMENT NUMBER: <u>105-C768x-00A</u>														

	<div></div>
	<div>Tonga-256 G5 G32</div>

# (23) POWER MANAGEMENT



AMD - PLATFORM SOLUTIONS ENG.  
7711 SOUTHWEST PKWY  
AUSTIN, TX. 78735

MSI

**MICRO-STAR INT'L CO., LTD.**

**MS-V314**

Size Custom

Date: Tuesday, July 22, 2014

Sheet 23 of 28

Rev 1.0

SHEET: POWER MANAGEMENT

DATE: Mon May 12 19:13 2014

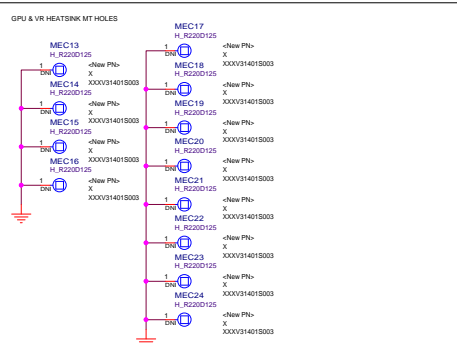
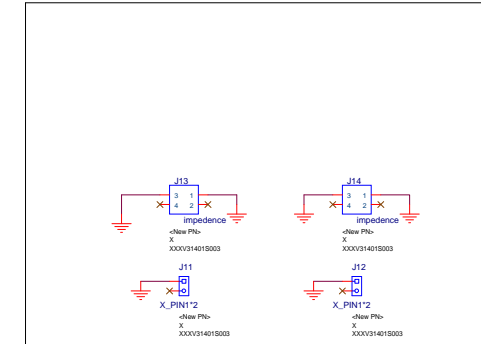
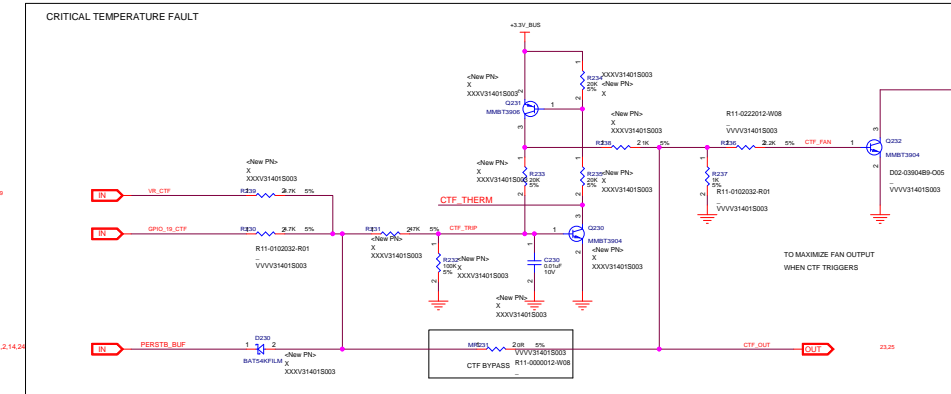
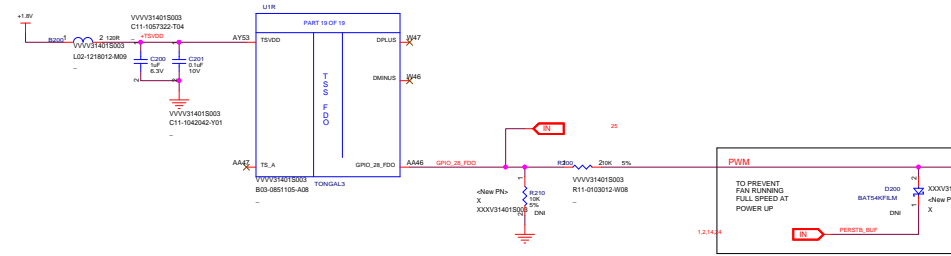
SHEET NUMBER: 21 OF 25

DOCUMENT NUMBER: 105-C766xx-00A

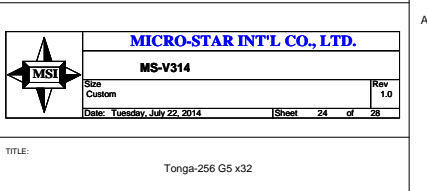
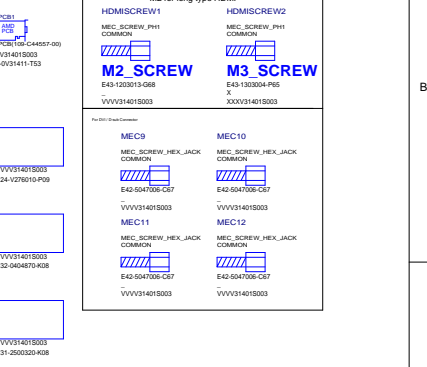
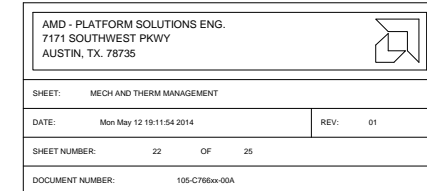
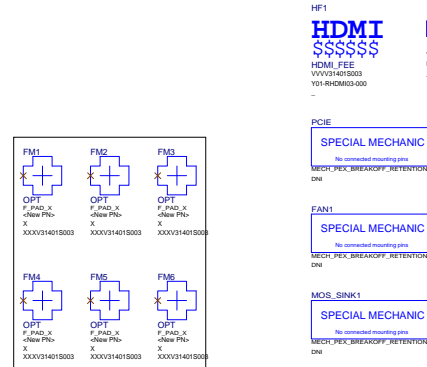
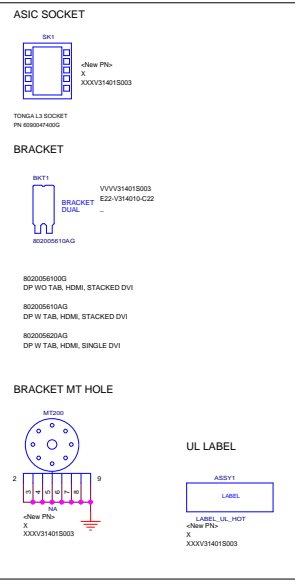
REV: 01

TITLE: Tonga-Z56 G5 x32

(24) MECH AND THERM MANAGEMENT



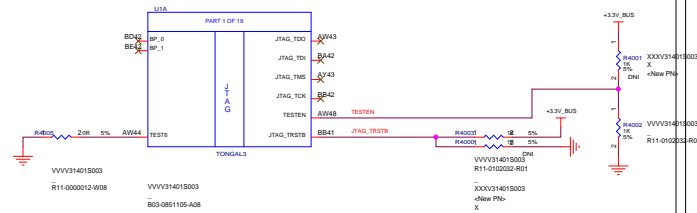
Vias	Layer	Ref Plane	Single Ended 45 Ohm +/- 5ohm	Single Ended 50 Ohm +/- 10%	Differential 80 Ohm +/- 10%	Differential 85 Ohm +/- 10%
			Target LW mm [mils] (3)	Target LW mm [mils] (3)	Target LW/SP mm [mils] (3)	Target LW/SP mm [mils] (3)
	L1	L2	0.1300 [5.12]	0.1020 [4.02]	0.1300/0.1800 [5.12/7.09]	0.1100/0.1400 [4.33/5.51]
	L2	L5				
	L6	L5	0.1300 [5.12]	0.1020 [4.02]	0.1300/0.1800 [5.12/7.09]	0.1100/0.1400 [4.33/5.51]





(25) DEBUG CIRCUIT

## JTAG



## LM96163 FOR BACKUP THERMAL CONTROL

## SWITCHES



VTMM - TEST CONNECTOR FOR VOLTAGE MEASUREMENTS

## DIGITAL POTS

## LED LIGHTS

LED RED "ON" INDICATES CTF FAULT

LED GREEN "ON" INDICATES BACO MODE

## DEBUG PIN STRAPS



AMD - PLATFORM SOLUTIONS ENG.  
7171 SOUTHWEST PKWY  
AUSTIN, TX. 78735

SHEET:        DEBUG CIRCUIT

DATE: Mon May 12 19:11:54 2014

REV: 01

SHEET NUMBER: 23 OF 25

DOCUMENT NUMBER: 105-C766xx-00A



**MICRO-STAR INT'L CO., LTD.**

MS-V314

Size  
Custom

Date: Tuesday, July 22, 2014

Sheet 25 of 28

1.0

	TITLE:
--	--------

Tonga-256 G5 x32

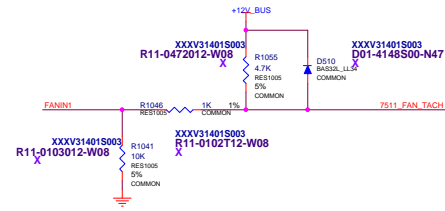
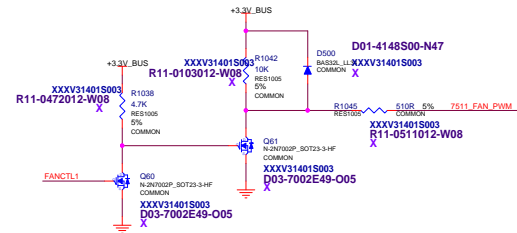
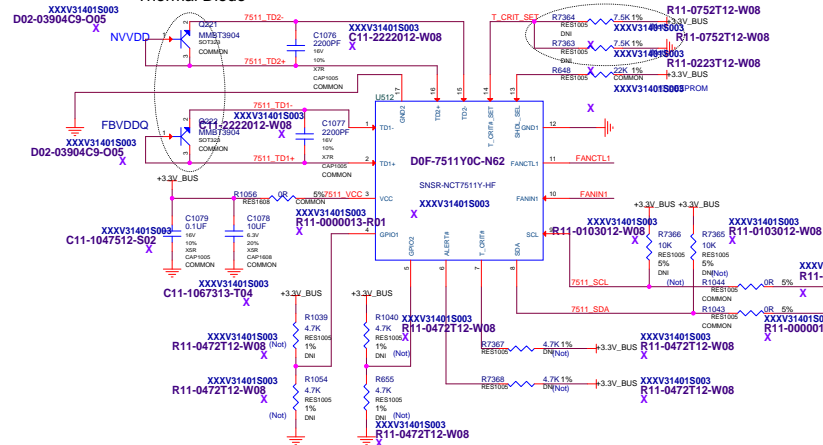
Thermal IC : NCT7511Y

Layout notice :

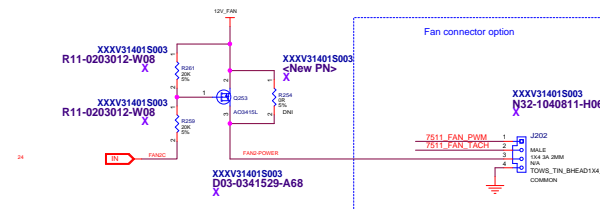
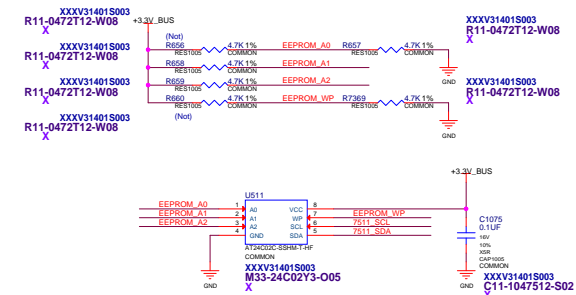
- \*Add ground shielding for D+ and Dtraces.
- \*D+/D- route has to be away from the high noise area.
- \*The recommended traces width and ground shielding spacing are 10mils.

Please refer datasheet  
TCRIT\_SET Table  
If floating, shutdown temp. set to 65°C

## Thermal Diode



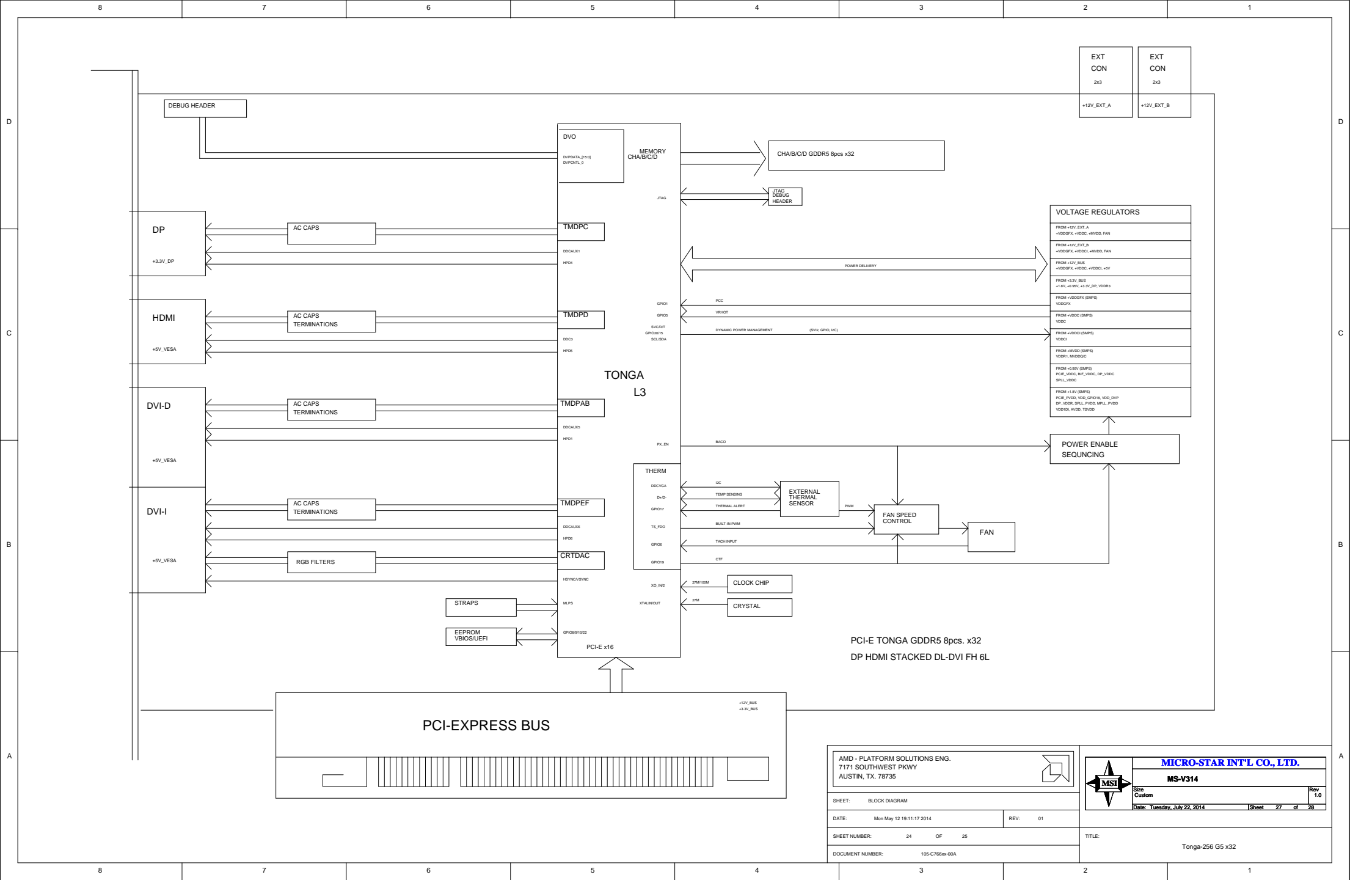
## EEPROM



**MICRO-STAR INT'L CO., LTD.**

MS-V314

Size Custom	Rev 1.0
Date: Tuesday, July 22, 2014	Sheet 26 of 28





**TITLE:**

Tonga-256 G5 x32

DOCUMENT NUMBER:

105-C766xx-00B

DATE:

Thu May 29 04:22:52 2014

SHEET NUMBER:

28

**OF**

28

REV: 1.0

## REVISION HISTORY

ENGINEER:

XXX

**NOTES:**

**NOTE**

CONFIDENTIAL AND PROPRIETARY TO ADVANCED MICRO DEVICES INC.

This AMD Board schematic and design is the exclusive property of AMD, and is provided only to entities under a non-disclosure agreement with AMD for evaluation purposes. Further distribution or disclosure is strictly prohibited. Use of this schematic and design for any purpose other than evaluation requires a Board Technology License Agreement with AMD. AMD makes no representations or warranties of any kind regarding this schematic and design, including, not limited to, any implied warranty of merchantability or fitness for a particular purpose, and disclaims responsibility for any consequences resulting from use of the information included herein.

C 2014

C 2014

Advanced Micro Devices

AMD - PLATFORM HARDWARE ENG  
#48, No.1387, ZHANGDONG ROAD  
SHANGHAI, CHINA 201203

[illegible]