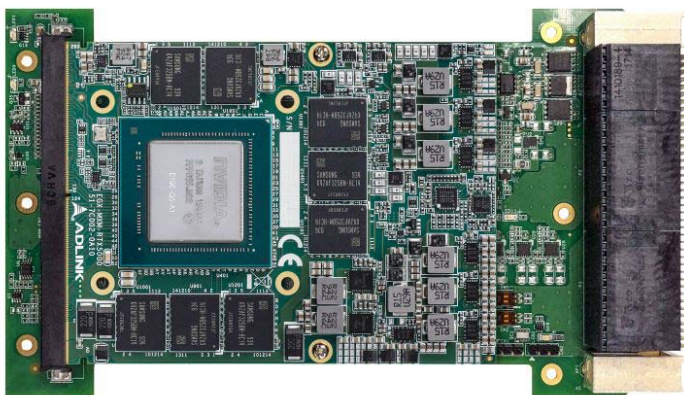


VPX3-MXM/RTX5000

3U VPX Rugged GPGPU Blade with NVIDIA
RTX5000

User's Manual



Manual Rev.: 1.1

Revision Date: August 4, 2023

Part No: 50M-37622-1010

Revision History

Revision	Release Date	Description of Change(s)
1.0	2023-05-26	Initial release
1.1	2023-08-04	Clarify active DP/HDMI ports on RTM. Previous revision: P/N 50M-00095-1000

Preface

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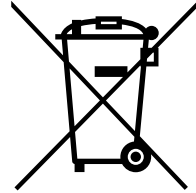
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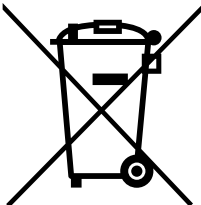
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Battery Labels (for products with battery)



Li-ion



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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



NOTE:

Additional information, aids, and tips that help users perform tasks.



CAUTION:

Information to prevent **minor** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.



WARNING:

Information to prevent **serious** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Introduction

1.1 Overview

The VPX3-MXM/RTX5000 is a 3U VPX general-purpose GPU (GPGPU) blade based on the NVIDIA RTX5000, supporting 16GB GDDR6 graphics memory with 4x DisplayPort or 4x HDMI output. The VPX3-MXM/RTX5000 brings a new level of performance to visual graphics and computing applications, fully integrating hardware acceleration for both graphics and computing code, enabling hardware acceleration for a wider class of applications than ever before.

The VPX3-MXM/RTX5000 features rugged conduction-cooled construction with conformal-coating, making it ideal for mission-critical applications requiring artificial intelligence and machine learning (AI/ML) and parallel computing, as well as SWaP optimization, including radar processing, target tracking, software-defined radio (SDR), intelligence, surveillance and reconnaissance (ISR), degraded visual environments (DVE), digital signal Processing (DSP), electronic warfare (EW), and signals intelligence (SIGINT)

The VPX3-MXM/RTX5000 is also SOSA-aligned, SOSA being one of several standards that fall broadly within the Modular Open Systems Approach (MOSA) initiative. SOSA centers on key interfaces and open standards, based on the VPX standard (VITA 46/48/65), and aims to develop a common, modular hardware architecture across next-generation, mission-critical applications.

1.2 Features

- ▶ NVIDIA® Quadro® Embedded RTX 5000 GPU with NVIDIA Turing™ architecture
- ▶ 3072 CUDA cores
- ▶ 16GB GDDR6 memory, 256-bit
- ▶ VITA 47 ECC4 rugged design
- ▶ 4x DisplayPort or 4x HDMI output
- ▶ SOSA-aligned (SKU dependent)

1.3 Block Diagrams

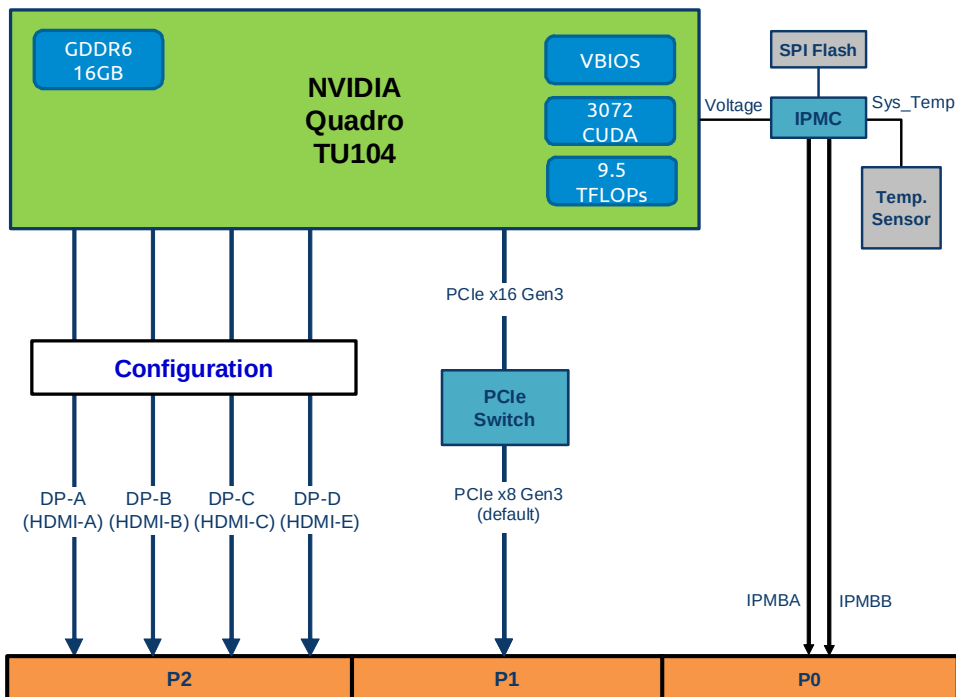


Figure 1-1: VPX3-MXM/RTX5000 Functional Block Diagram

1.4 VPX3-MXM/RTX5000 SKU Table

SKU	Video Output	SOSA-aligned	Power Entry
VPX3-MXM/RTX5000,DP, SOSA,ETT,CC	4x DP	Yes	12V (VS1) 3.3V_AUX
VPX3-MXM/RTX5000,DP, ETT,CC	4x DP	No	12V (VS1) 5V (VS2) 3V3 (VS3) 3.3V_AUX
VPX3-MXM/RTX5000,HDMI, ETT,CC	4x HDMI	No	

1.5 Package Contents

The VPX3-MXM/RTX5000 is packaged with the following components. If any of the items on the contents list are missing or damaged, retain the shipping carton and packing material and contact the dealer for inspection. Please obtain authorization before returning any product to ADLINK. The packing contents of the VPX3-MXM/RTX5000 are non-standard configurations and may vary depending on customer requests.

GPGPU Blade

- ▶ VPX3-MXM/RTX5000
 - ▷ Thermal module is assembled on the board

Rear Transition Module (optional)

- ▶ VPX3-RMXM-DP
- ▶ VPX3-RMXM-HDMI



NOTE:

The contents of non-standard VPX3-MXM/RTX5000 configurations may vary depending on the customer requirements.



CAUTION:

This product must be protected from static discharge and physical shock. Never remove any of the components except at a static-free workstation. Use the anti-static bag shipped with the product when putting the board on a surface. Wear an anti-static wrist strap properly grounded on one of the system's ESD ground jacks when installing or servicing system components.

2 Specifications

2.1 VPX3-MXM/RTX5000 Specifications

VITA Standards	• VITA 46.0 VPX Base Standard • VITA 46.4 PCI Express on VPX Fabric Connector • VITA 48.0 Mechanical Specification for Microcomputers using REDI Conduction Cooling Applied to VITA 46 • VITA 65 OpenVPX Architecture Framework for VPX • SOSA aligned w/o PCIe interface from P2
MXM Module	• EGX-MXM-RTX5000 (TGP 110W, GPU TDP 81W, Standard MXM 3.1 Type B+)
Power Entry	• 12V(VS1), 5V(VS2), 3V3(VS3) and 3.3V_AUX (non-SOSA-aligned) • 12V(VS1) and 3.3V_AUX only (SOSA-aligned)
Display	• 4x DisplayPort 1.4 4K@120Hz or 4x HDMI 2.0/DVD-D to P2 • Supports DP++ (CONFIG1 on P2)
Mechanical	• 3U VPX 0.85" with conduction cooling; secondary side retainer • Dimensions: 100mm x 160mm • Supports MXM 4.1 Type-B+ (110mm) • Conformal coating
Profiles	• Module Profile: MOD3-PER-2F-16.3.1-3 • Slot Profile: SLT3-PER-2F-14.3.1 • Supports SOSA slot profile (PCIe x8): - SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-n Payload Slot Profile, P2 depopulated - SLT3-PAY-2F2U-14.2.3 Legacy Payload Slot Profile • For PCIe x8 & x4 support profile: - SLT3-PAY-1D-14.2.6 - SLT3-PAY-2F-14.2.7
PCIe Configuration	• PCIe interface over P1 • PCIe bifurcation 1 x16, 1 x8 (default), 1 x4, 2 x8, 2 x4, 1 x8 + 2 x4 • Support two ports NTB

Table 2-1: VPX3-MXM/RTX5000 Specifications

Clock Configuration	PCIe Clock Mode selection by System Management request • Synchronize mode (default) • Unsynchronized mode
IPMC	Smartfusion Intelligent A2F200M3F-CSG288 compliant with VITA 46.11
Reset Button	Yes (front panel)
RTM Support	• 4x DP display ports from RTM or • 4x HDMI display ports from RTM
Environmental	• Operating Temp: -40°C to +85°C at wedge lock (VITA47.0, ECC4-CC4) • Storage Temp: -55°C to +105°C • Relative Humidity: 95% non-condensing • Shock: 40G, 11 ms (VITA47.0, ECC4-OS2) • Vibration (Random): 12Grms, 5Hz to 2000Hz (VITA47.0, ECC4-V3) • Vibration (Sinusoidal): 5G, 20Hz to 2000Hz • Altitude: 60,000 feet, operating
EMI	• CE EN55032/55035 • FCC 47 CFR Part 15 Subpart B, Class A

Table 2-1: VPX3-MXM/RTX5000 Specifications

Note: Specifications are subject to change without prior notice.

2.2 Power Consumption

This section provides information on the power consumption of the VPX3-MXM/RTX5000 measured with GPUMon.

VPX3-MXM/RTX5000 + DP (VITA)	
Windows Idle mode	
3.3V(A)	0.62
5V(A)	1.62
12V(A)	1.31
3.3 AUX(A)	0.16
Power consumption(W)	26.39
Windows Max mode	
3.3V(A)	1
5V(A)	1.95
12V(A)	9.86
3.3 AUX(A)	0.16
Power consumption(W)	131.90
VPX3-MXM/RTX5000 + HDMI (VITA)	
Windows Idle mode	
3.3V(A)	0.69
5V(A)	1.68
12V(A)	1.28
3.3 AUX(A)	0
Power consumption(W)	26.04
Windows Max mode	
3.3V(A)	1.03
5V(A)	1.94
12V(A)	9.9
3.3 AUX(A)	0
Power consumption(W)	131.90

Table 2-2: VPX3-MXM/RTX5000 Power Consumption

VPX3-MXM/RTX5000 + DP (SOSA)	
Windows Idle mode	
3.3V(A)	0
5V(A)	0
12V(A)	2
3.3 AUX(A)	0.16
Power consumption(W)	24.53
Windows Max mode	
3.3V(A)	0
5V(A)	0
12V(A)	10.7
3.3 AUX(A)	0.16
Power consumption(W)	128.93

Table 2-2: VPX3-MXM/RTX5000 Power Consumption

3 Functional Description

The following sections describe the VPX3-MXM/RTX5000 features and functions.

3.1 GPGPU Specifications

GPU	E19E-Q5 (TU104)
TGP	110W
GPU TDP	81W
Memory TDP	31W
Architecture	Quadro
Memory	16GB GDDR6
CUDA	3072
TFLOPs	9.5
PCIe	PCIe x16
Display	Four DisplayPort 1.4
Open GL	4.6
Open CL	1.2
DirectX	12
H/W Encode/Decode	H.265 (HEVC) H.264 (AVC)

3.2 GDDR6 Memory

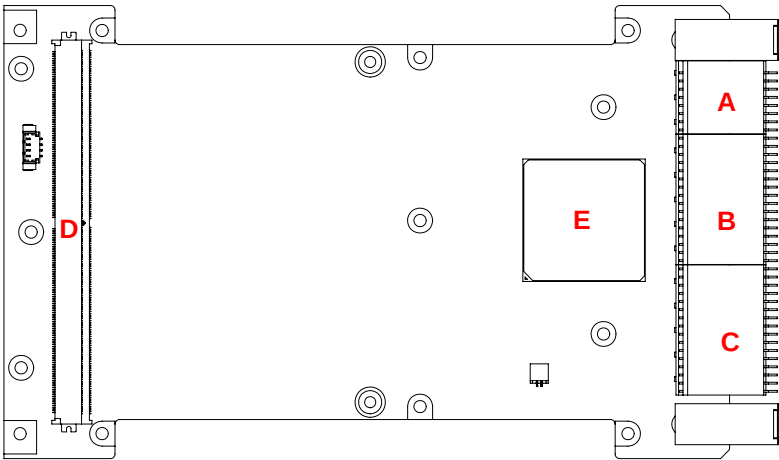
GDDR6 double data rate synchronous graphics random access memory (SGRAM) conforms to the standards which were set out in the GDDR6 specification by JEDEC and it is specifically designed for use in graphics devices for the most demanding and memory-intensive graphics applications, such as 3D gaming and HD video editing. It is a dedicated memory for the Graphic Processing Unit (GPU). Such memory not only reduces the display and graphics related load on the computer's main memory, but also serves to improve the performance of the GPU and the system's display, providing much better visual experiences than would be possible with just the computer's integrated graphics.

3.3 Display Interfaces

The VPX3-MXM/RTX5000 provides four digital output channels. Four channels can be active at same time. The VPX3-MXM/RTX5000 utilizes the P2 rear I/O connector for DisplayPort (default) or HDMI (BOM option) outputs via RTM. Refer to Figure 1-1: VPX3-MXM/RTX5000 Functional Block Diagram on page 2.

4 VPX3-MXM/RTX5000 Board Interfaces

4.1 VPX3-MXM/RTX5000 Board Layout



A	VPX Connector_P0	D	MXM Connector
B	VPX_Connector_P1	E	PCIe Switch PEX8734
C	VPX Connector_P2		

Figure 4-1: VPX3-MXM/RTX5000 Board Layout (carrier only)

4.2 Information LEDs

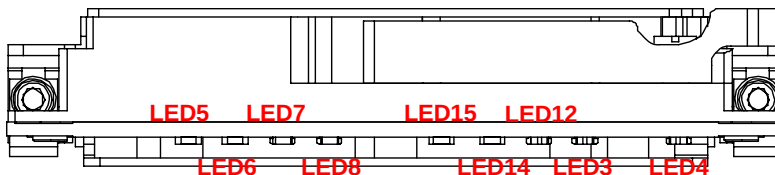


Figure 4-2: VPX3-MXM/RTX5000 LED locations

LED	Function	Color	Description
LED3	GPU Active	Green	On: GPU ready Off: GPU not ready
LED4	All Power Good	Green	On: All power ready Off: All power not ready
LED5	MXM Critical Temperature	Red	On: Temperature too high Off: Temperature normal
LED6	Input Power Failure	Red	On: Input power fail Off: Input power pass
LED7	Ambient Temperature Alert	Yellow	On: temperature too high Off: temperature normal
LED8	MXM High Temperature alert	Yellow	On: temperature too high Off: temperature normal
LED12	IPMC Heartbeat	Green	Flashing: IPMC ready Off: IPMC not ready
LED14	IPMC WDT	Red	On: WDT start up Off: WDT not working
LED15	MTN_MODE SEL (RS232/UART)	Red	On: RS232 Off: UART Mode

4.3 VPX3-MXM/RTX5000 Mechanical Dimensions

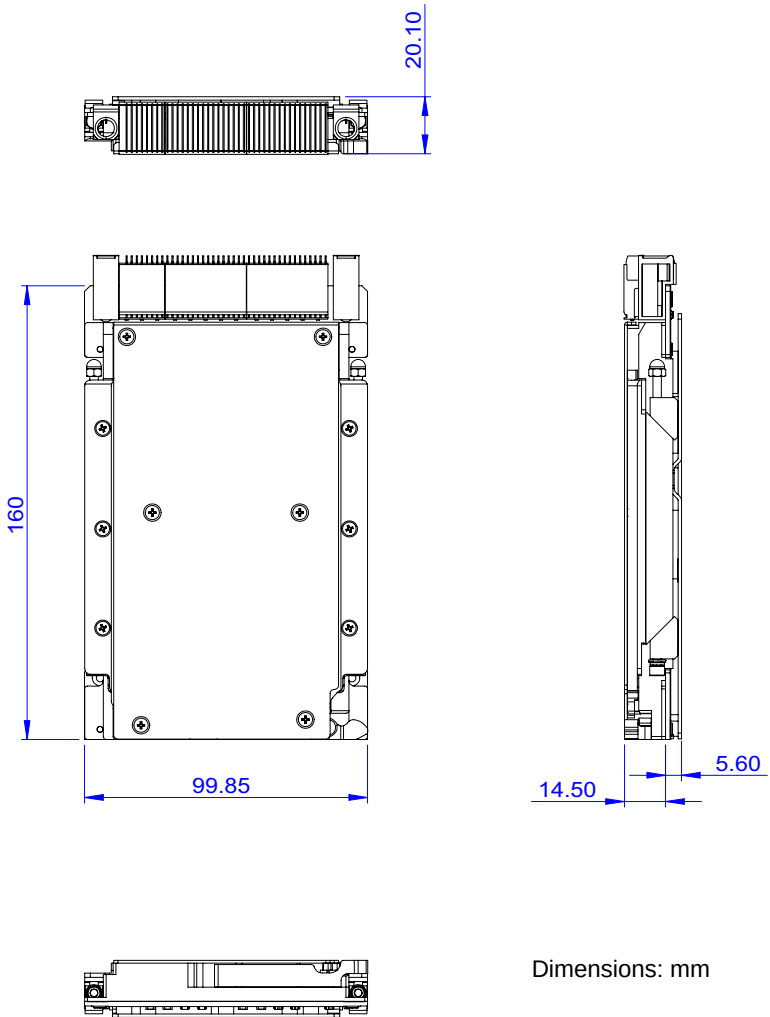


Figure 4-3: VPX3-MXM/RTX5000 Mechanical Drawing

4.4 VPX Connectors

P0 Connector (VITA SKU)

Pin	G	F	E	D	C	B	A
1	P12V	P12V	P12V	NC	P3V3	P3V3	P3V3
2	P12V	P12V	P12V	NC	P3V3	P3V3	P3V3
3	P5V	P5V	P5V	NC	P5V	P5V	P5V
4	IPMB_B_CLK	IPMB_B_DAT	GND	NC (-12V_AUX)	GND	SYSTEM RESET	NVMRO
5	GAP	GA4	GND	P3V3_AUX	GND	IPMB_A_CLK	IPMB_A_DAT
6	GA3	GA2	GND	NC (+12V_AUX)	GND	GA1	GA0
7	JTAG_TCK	GND	JTAG_TDO	JTAG_TDI	GND	JTAG_TMS	JTAG_TRST
8	GND	REF_CLK-	REF_CLK+	GND	RES_BUS-	RES_BUS+	GND

P0 Connector (SOSA SKU)

Pin	G	F	E	D	C	B	A
1	P12V	P12V	P12V	NC	NC	NC	NC
2	P12V	P12V	P12V	NC	NC	NC	NC
3	NC	NC	NC	NC	NC	NC	NC
4	IPMB_CLK	IPMB_DAT	GND	NC	GND	SYSTEM RESET	NVMRO
5	GAP	GA4	GND	P3V3_AUX	GND	IPMA_CLK	IPMA_DAT
6	GA3	GA2	GND	NC	GND	GA1	GA0
7	JTAG_TCK	GND	JTAG_TDO	JTAG_TDI	GND	JTAG_TMS	JTAG_TRST
8	GND	REF_CLK-	REF_CLK+	GND	RES_BUS-	RES_BUS+	GND

P1 Connector

Pin	G	F	E	D	C	B	A
1	GDiscrete1#	GND	EP00_T-	EP00_T+	GND	EP00_R-	EP00_R+
2	GND	EP01_T-	EP01_T+	GND	EP01_R-	EP01_R+	GND
3	P1_VBAT	GND	EP02_T-	EP02_T+	GND	EP02_R-	EP02_R+
4	GND	EP03_T-	EP03_T+	GND	EP03_R-	EP03_R+	GND
5	SYSCON#	GND	EP04_T-	EP04_T+	GND	EP04_R-	EP04_R+
6	GND	EP05_T-	EP05_T+	GND	EP05_R-	EP05_R+	GND
7	NC	GND	EP06_T-	EP06_T+	GND	EP06_R-	EP06_R+
8	GND	EP07_T-	EP07_T+	GND	EP07_R-	EP07_R+	GND
9	Maintenance Port TX	GND	EP08_T-	EP08_T+	GND	EP08_R-	EP08_R+
10	GND	EP09_T-	EP09_T+	GND	EP09_R-	EP09_R+	GND
11	Maintenance Port RX	GND	EP10_T-	EP10_T+	GND	EP10_R-	EP10_R+
12	GND	EP11_T-	EP11_T+	GND	EP11_R-	EP11_R+	GND
13	NC	GND	EP12_T-	EP12_T+	GND	EP12_R-	EP12_R+
14	GND	EP13_T-	EP13_T+	GND	EP13_R-	EP13_R+	GND
15	MASKABLE RESET#	GND	EP14_T-	EP14_T+	GND	EP14_R-	EP14_R+
16	GND	EP15_T-	EP15_T+	GND	EP15_R-	EP15_R+	GND

P2 Connector (DP SKU)

Pin	G	F	E	D	C	B	A
1	P3V3_DPA/ P5V_HDMIA	GND	DPA_L1-	DPA_L1+	GND	DPA_L0-	DPA_L0+
2	GND	DPA_L3-	DPA_L3+	GND	DPA_L2-	DPA_L2+	GND
3	P3V3_DPB/ P5V_HDMIB	GND	DPA_CFG1	HOTPLUGA	GND	DPA_AUX-	DPA_AUX+
4	GND	DPB_L1-	DPB_L1+	GND	DPB_L0-	DPB_L0+	GND
5	P3V3_DPC/ P5V_HDMIC	GND	DPB_L3-	DPB_L3+	GND	DPB_L2-	DPB_L2+
6	GND	DPB_CFG1	HOTPLUG B	GND	DPB_AUX-	DPB_AUX+	GND
7	P3V3_DPD/ P5V_HDMID	GND	DPC_L1-	DPC_L1+	GND	DPC_L0-	DPC_L0+
8	GND	DPC_L3-	DPC_L3+	GND	DPC_L2-	DPC_L2+	GND
9	P3V3_DPE/ P5V_HDMIE	GND	DPC_CFG1	HOTPLUGC	GND	DPC_AUX-	DPC_AUX+
10	GND	DPD_L1-	DPD_L1+	GND	DPD_L0-	DPD_L0+	GND
11	NC	GND	DPD_L3-	DPD_L3+	GND	DPD_L2-	DPD_L2+
12	GND	DPD_CFG1	HOTPLUG D	GND	DPD_AUX-	DPD_AUX+	GND
13	NC	GND	DPE_L1-	DPE_L1+	GND	DPE_L0-	DPE_L0+
14	GND	DPE_L3-	DPE_L3+	GND	DPE_L2-	DPE_L2+	GND
15	NC	GND	DPE_CFG1	HOTPLUG E	GND	DPE_AUX-	DPE_AUX+
16	GND	NC	NC	GND	NC	NC	GND

- ▶ DDI Port A: DPA_xx
- ▶ DDI Port B: DPB_xx
- ▶ DDI Port C: DPC_xx
- ▶ DDI Port D: DPD:xx
- ▶ DDI Port E: DPE_xx



NOTE:

- VPX-RTX5000 supports up to 4x DisplayPort or 4x HDMI.
- DP[A:E]_CFG1 for DP++ of CONFIG1 pin definition in DP connector.
- HOTPLUG[A:E] for DP port hot-plug detection
- 3.3V for DP, 5V for HDMI (SKU dependent)

P2 Connector (HDMI SKU)

Pin	G	F	E	D	C	B	A
1	HDMIA_L2 +	HDMIA_L2 -	GND	HDMIA_L1 +	HDMIA_L1 -	GND	P5V_HDMI A
2	GND	HDMIA_L0 +	HDMIA_L0 -	GND	HDMIA_C LK+	HDMIA_C LK-	GND
3	HDMIA_CL K	HDMIA_DA T	GND	HOTPLUG A	NC	GND	P5V_HDMI B
4	GND	HDMIB_L2 +	HDMIB_L2 -	GND	HDMIB_L1 +	HDMIB_L1 -	GND
5	HDMIB_L0 +	HDMIB_L0 -	GND	HDMIB_CL K+	HDMIB_C LK-	GND	P5V_HDMI C
6	GND	HDMIB_CL K	HDMIB_D AT	GND	HOTPLUG B	NC	GND
7	HDMIC_L2 +	HDMIC_L2 -	GND	HDMIC_L1 +	HDMIC_L1 -	GND	P5V_HDMI D
8	GND	HDMIC_L0 +	HDMIC_L0 -	GND	HDMIC_C LK+	HDMIC_C LK-	GND
9	HDMIC_C LK	HDMIC_D AT	GND	HOTPLUG C	NC	GND	P5V_HDMI E
10	GND	HDMID_L2 +	HDMID_L2 -	GND	HDMID_L1 +	HDMID_L1 -	GND
11	HDMID_L0 +	HDMID_L0 -	GND	HDMID_CL K+	HDMID_C LK-	GND	NC
12	GND	HDMID_CL K	HDMID_D AT	GND	HOTPLUG D	NC	GND
13	HDMIE_L2 +	HDMIE_L2 -	GND	HDMIE_L1 +	HDMIE_L1 -	GND	NC
14	GND	HDMIE_L0 +	HDMIE_L0 -	GND	HDMIE_C LK+	HDMIE_C LK-	GND
15	HDMIE_CL K	HDMIE_DA T	GND	HOTPLUG E	NC	GND	NC
16	GND	NC	NC	GND	NC	NC	GND

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5 RTM Board Interfaces

This chapter illustrates the board layout, connector pin assignments, and jumper settings to familiarize users with the VPX3-RMXM-DP and VPX3-RMXM-HDMI RTMs.

5.1 VPX3-RMXM-DP Block Diagram

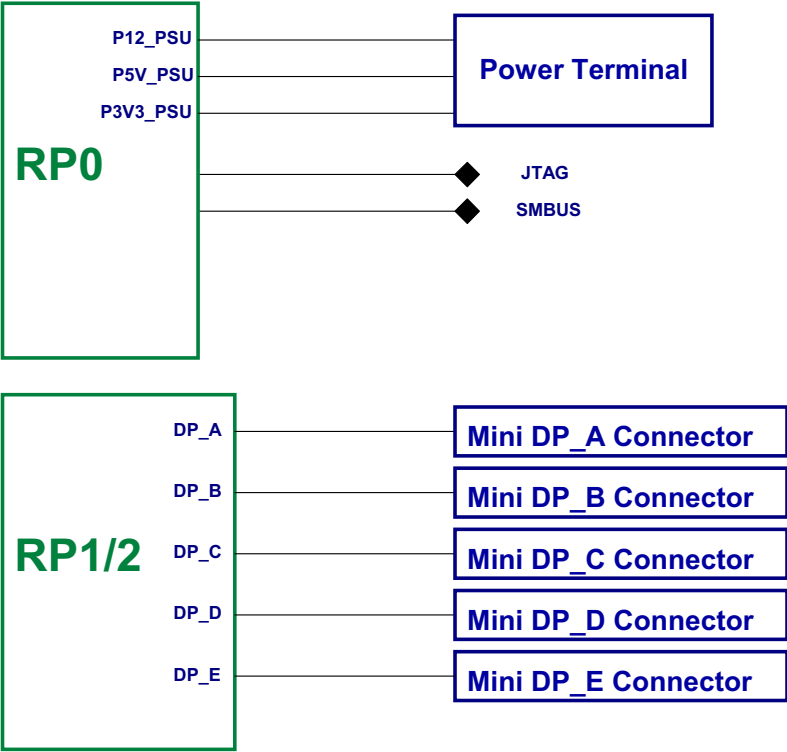


Figure 5-1: VPX3-RMXM-DP Functional Block Diagram



NOTE:

The VPX3-MXM/RTX5000 supports 4x DP outputs. Ports A, B, C, D are active on the RTM.

5.2 VPX3-RMXM-HDMI Block Diagram

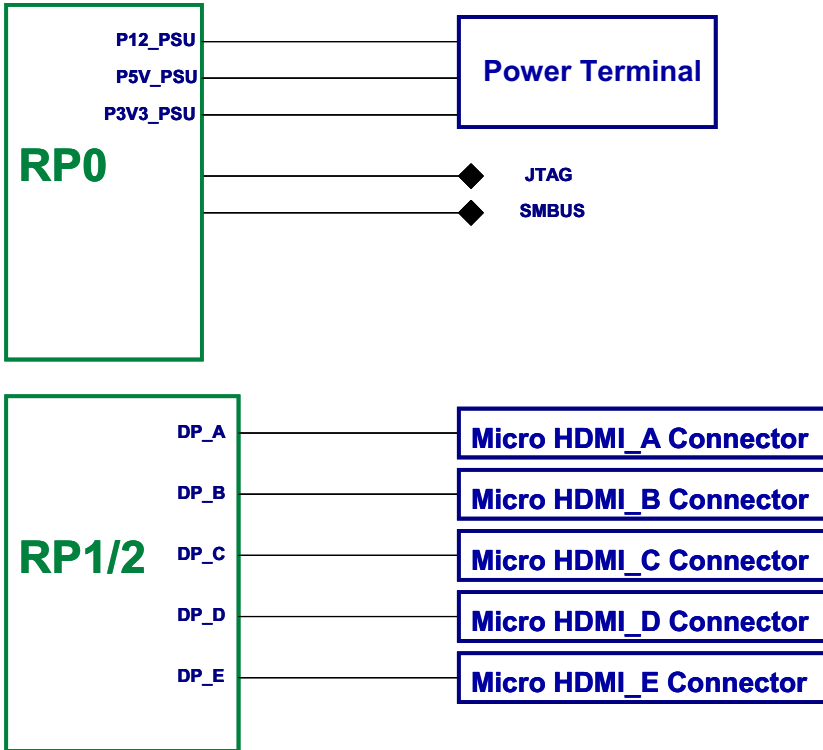


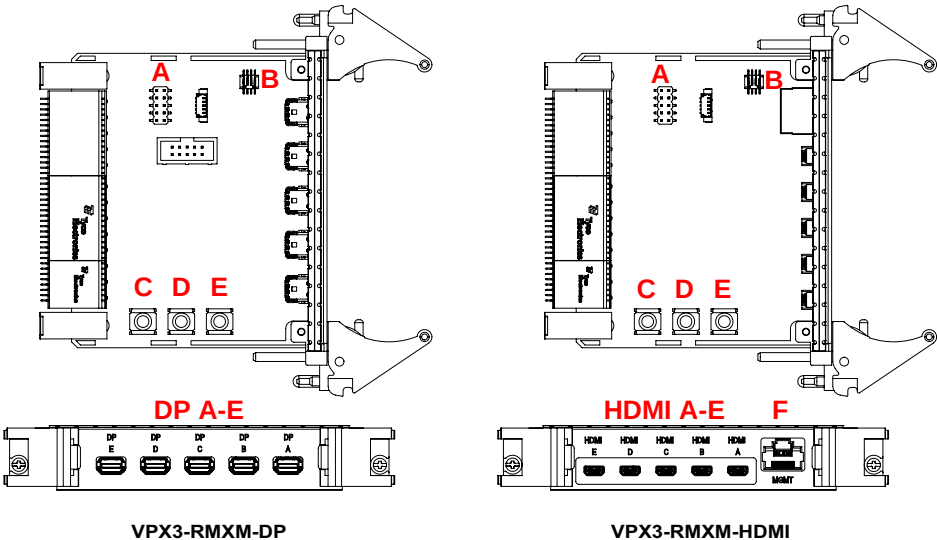
Figure 5-2: VPX3-RMXM-HDMI Functional Block Diagram



NOTE:

The VPX3-MXM/RTX5000 supports 4x HDMI outputs. Ports A, B, C, E are active on the RTM.

5.3 RTM Board Layout



A	JTAG Header	D	3.3V Power Terminal
B	IPM1/IPM2 Selection Switch	E	Ground Terminal
C	5V Power Terminal	F	IPMC Debug Port

Figure 5-3: RTM Board Layout



NOTE:

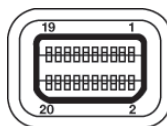
The VPX3-MXM/RTX5000 supports 4x DP/HDMI outputs. Ports A, B, C, D are active on the VPX3-RMXM-DP, and ports A, B, C, E are active on the VPX3-RMXM-HDMI.

5.4 RTM Connector Pin Assignments

VPX3-RMXM-DP Rear I/O Connectors

Mini DisplayPort Connector

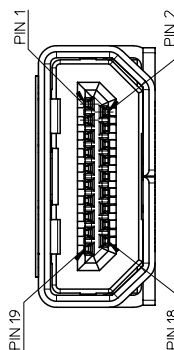
Pin	Signal	Pin	Signal
1	GND	11	DP1_TXN1_CN
2	DP_CN_HPD	12	DP1_TXN3_CN
3	DP1_TXP0_CN	13	GND
4	DP1_CFG1_CN	14	GND
5	DP1_TXN0_CN	15	DP1_TXP2_CN
6	DP1_CFG2_CN	16	DP_AUX_C_P
7	GND	17	DP1_TXN2_CN
8	GND	18	DP_AUX_C_N
9	DP1_TXP1_CN	19	GND
10	DP1_TXP3_CN	20	P_+3V3_DP1_CN



VPX3-RMXM-HDMI Rear I/O Connectors

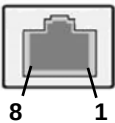
Micro HDMI Connector

Pin	Signal	Pin	Signal
1	Hot Plug Detect	11	TMDS Data0-
2	NC	12	TMDS Clock+
3	TMDS Data2+	13	TMDS Clock Shield
4	TMDS Data2 Shield	14	TMDS Clock-
5	TMDS Data2-	15	CEC
6	TMDS Data1+	16	DDC/CEC/HEAC Ground
7	TMDS Data1 Shield	17	DDC SCL
8	TMDS Data1-	18	DDC SDA
9	TMDS Data0+	19	+5 V Power
10	TMDS Data0 Shield		



IPMC Debug Port (RJ-45)

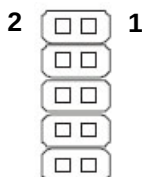
Pin #	Signal
1	NC
2	NC
3	MTN_TXD
4	GND
5	GND
6	MTN_RXD
7	NC
8	NC



RTM Onboard Connectors and Switches

JTAG Header

Pin #	Signal
1	GND
2	TCK
3	NC
4	TDO
5	+3.3V
6	TMS
7	TRST
8	+3.3V
9	GND
10	TDI



IPM1/IPM2 Selection Switch

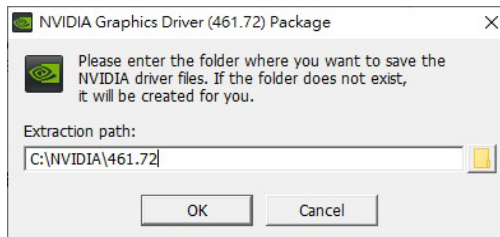
Function	Pin Settings
IPM1	1,2 OFF 3,4 ON
IPM2	1,2 ON 3,4 OFF

6 Driver Installation

The VPX3-MXM/RTX5000 drivers are available from the ADLINK website: www.adlinktech.com/Products/VPX/VPXGraphicsCards_XMCModules/VPX3-RTX5000-STD. ADLINK provides validated drivers for Windows 7. We recommend using these drivers to ensure compatibility.

Install the Windows operating system before installing any driver. Most standard I/O device drivers are installed during Windows installation.

1. Install the chipset driver by extracting the contents of **NVIDIA_Graphic_WIN10_64_V_R461.72.zip** and running the program **setup.exe**.
2. The driver package will auto-extract to the default location. Change the path if desired.



3. Continue the driver installation as instructed.



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Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS**, and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- ▶ Read these safety instructions carefully.
- ▶ Keep this user's manual for future reference.
- ▶ Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- ▶ When installing/mounting or uninstalling/removing equipment:
 - ▷ Turn off power and unplug any power cords/cables.
- ▶ To avoid electrical shock and/or damage to equipment:
 - ▷ Keep equipment away from water or liquid sources;
 - ▷ Keep equipment away from high heat or high humidity;
 - ▷ Keep equipment properly ventilated (do not block or cover ventilation openings);
 - ▷ Make sure to use recommended voltage and power source settings;
 - ▷ Always install and operate equipment near an easily accessible electrical socket-outlet;
 - ▷ Secure the power cord (do not place any object on/over the power cord);
 - ▷ Only install/attach and operate equipment on stable surfaces and/or recommended mountings; and,
 - ▷ If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.

- ▶ Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

A Lithium-type battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries appropriately.

- ▶ Equipment must be serviced by authorized technicians when:
 - ▷ The power cord or plug is damaged;
 - ▷ Liquid has penetrated the equipment;
 - ▷ It has been exposed to high humidity/moisture;
 - ▷ It is not functioning or does not function according to the user's manual;
 - ▷ It has been dropped and/or damaged; and/or,
 - ▷ It has an obvious sign of breakage.

Getting Service

Ask an Expert: <https://www.adlinktech.com/en/Askexpert>

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