Embedded MXM module

MX3500A-SA Series

USER MANUAL

Document Change History

Version	Date	Description	Authors
V1.0	2024/12/27	Initial Release.	Emily Chou
V1.1	2025/04/02	Updated the Board Configuration and Ordering Information. And revise the MXM pin definition for PIN16.	Emily Chou
V1.2	2025/05/05	Add Section 4.2 and Section 4.3.	Emily Chou

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Version 1.0

Acknowledgements

Customer Support Overview

Contact your distributor, sales representative, or Aetina's customer service center for technical support if you need additional assistance. Please have the following information ready:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

Visit the Aetina website at https://www.aetina.com where you can find the latest information about the product.

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Product Warranty

Aetina warrants the original purchaser, that each of its products will be free from defects in materials and workmanship which refers to “Aetina warranty policy” on Aetina’s official website: https://www.aetina.com/. Aetina warranty policy will be updated from time to time, and the last version shall be binding on the parties.
For out of warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

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ESD Warning

This product, like all electronic products, uses the product that can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged. Damage due to inappropriate handling is not covered by Aetina warranty policy. The following precautions must be taken:

- Do not open the protective conductive packaging until you have read the following and are at an approved anti-static workstation.
- If working on a prototyping board, use a soldering iron or station that is marked as ESD-safe.
- Always disconnect the product from the prototyping board when it is being worked on.
- Always discharge yourself by touching a grounded bare metal surface or approved anti-static mat before picking up an ESD - sensitive electronic component.
- Use an approved anti-static mat to cover your work surface.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references:

1. All cautions and warnings on the equipment should be noted.
2. Make sure the power source matches the power rating specifications of the device.
3. Position the power cord away from obstructions and avoid stepping on it. Do not place anything over the power cord.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
6. Always completely disconnect the power before working on the system’s hardware.

7. Keep this equipment away from humidity.
8. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
9. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
10. Be sure that the room in which you choose to operate your system has adequate air circulation. Ensure that the chassis cover is secure.
11. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If any of the following situations arises, please the contact Aetina's service personnel:
    - Power cord or plug is damaged
    - Liquid intrusion to the device
    - Exposure to moisture
    - Device is not working as expected or in a manner as described in this manual
    - The device is dropped or damaged
    - Any obvious signs of damage displayed on the device

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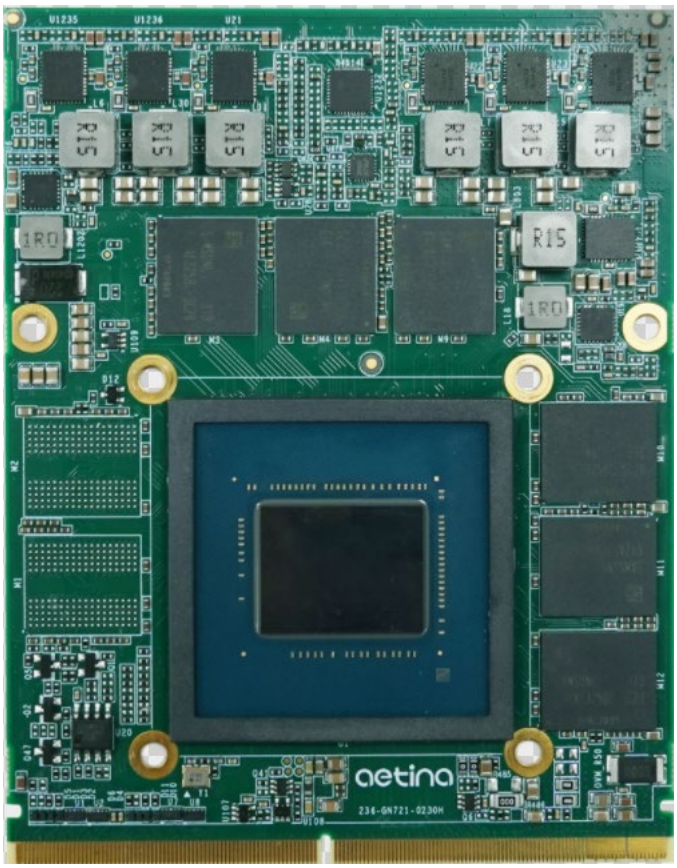
1. Product Specification

The MXM MX3500A-SA module features advanced NVIDIA RTX 3500 Ada Embedded GUP. It's Ada Lovelace architecture in the MXM 3.1 Type B form factor. With 5120 CUDA core, 40 RT cores and 160 Tensor cores, 12GB GDDR6 memory. The MX3500A-SA support PCIe Gen 4.0 interface is delivers faster sequential data transfer than PCIe Gen 3.0 interface and bringing excellent performance and power efficiency into a wide variety of embedded systems, fully integrating hardware acceleration for both graphics, and computing code, enabling hardware acceleration for a wider class of software applications than ever before.

The Ada GPU architecture has been designed to provide revolutionary performance for AI-based neural graphics. It delivers a dramatically higher baseline of GPU performance and marks the tipping point for neural graphics. It delivers outstanding gaming and creating, professional graphics, AI, and compute performance.

The NVIDIA RTX 3500 ADA supports ECC (Error Correction Code) and provides graphics intensive acceleration and real time ray-tracing capability for applications like scientific and medical visualization, digital content creation (DCC), artificial intelligence (AI) and machine learning (ML).



1.1 Features

- Powered by NVIDIA Ada Lovelace architecture
- 5120 CUDA cores, 40 RT cores and 160 Tensor cores, 12GB GDDR6
- 23.04 TFLOPS peak FP32 performance
- PCIe Gen 4.0 x16 interface
- 5 years longevity product supply service

  - **GPU**
    - NVIDIA RTX 3500 Ada Embedded GPU
    - Stream Processing Unites: 5120
    - Voltage: Variable

  - **Board**
    - 12-layer printed circuit board (PCB)
    - 16-lanes PCI Express 4.0 capable
    - Physical dimensions: 105mm x 82mm
    - Board power: 115 W

  - **Connectors**
    - MXM 3.1 Connector Interoperability

  - **Memory Configuration**
    - Memory clock: 9000 MHz (18.0 Gbps)
    - Interface: 192-bit
    - Local frame buffer: 12GB (6 pieces 512M x 32 GDDR6, FBGA-180 package)

  - **Display Support**
    - DisplayPort
      Maximum resolution: 7680 x 4320 at 60 Hz

  - **Cooling System**
    - N/A

  - **Operating System Support**
    - Windows® 10-11 64-bit
    - Linux 64-bit

1.2 Configuration

Lists the SKU configuration currently available for the NVIDIA RTX 3500 ADA graphics board.

■ Board configuration

Specification	MX3500A-SAA-A1	MX3500A-SAA-A2	MX3500A-SAG-A1
Chip	NVIDIA RTX 3500 Ada Embedded GPU		
Core clock(MHz)	Base= 1725 Boost= 2250	Base= 1470 Boost= 1995	Base= 1470 Boost= 1995
Memory speed	18.0 Gbps		
Frame buffer	12GB GDDR6		
Memory interface	192-bit		
Memory type	512M x 32 GDDR6 FBGA-180 package		
Memory AVL	SAMSUNG K4ZAF325BC-SC20		
Maximum board power	115 W	80 W	80 W
PCI Express interface	PCIE Gen4.0 x16		
Connectors	DisplayPort 1.4 output via MXM golden finger is supported		
Supplementary Power Connector	N/A		
Maximum output	4		
HDCP support	Yes		
Operating Temperature	0 to +55°C		
Wide Temperature	N/A		-40°C to +70°C
Operating Humidity	40°C@ 95%, Non-condensing.		

1.3 GPU feature

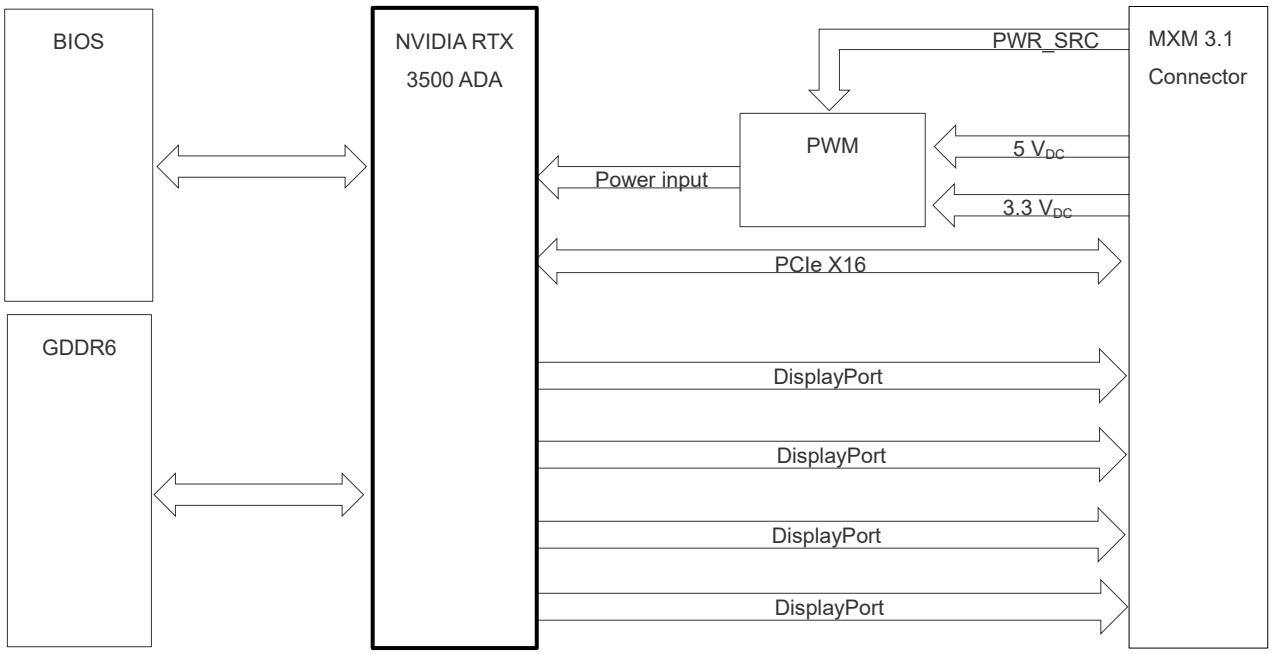
■ Power-Saving Features

GPU feature	Guidance
GC6 3.0	Not supported
GC OFF 1.0	Not supported
ASPM	Not supported
Advanced Optimus	Not supported
Optimus/Hybrid-only Configuration	Supported
Modern Standby	Not supported
S0iX State	Not supported

2. Hardware Information

2.1 Block Diagram

The Aetina MX3500A-SA is based on PCI Express 4.0 form factor.



MX3500A-SA Block diagram

2.2 General Purpose Graphics Processing Unit

The Aetina MX3500A-SA is based on NVIDIA RTX 3500 Ada Embedded GPU. The 3500 ADA is compliant with NVIDIA's CUDA computing capability 8.9.

- **GPU Resources**
  - GDDR6 SDRAM
    - 6 pieces 512M x 32 GDDR6, total capacity of 12288 Mbytes
    - 192bit data bus width
    - 18.0 Gbps clock frequency
  - BIOS ROM
    - 16Mbit SPI FLASH for BIOS image

2.3 Display Interface

The MX3500A-SA provides four digital output channels that can be active at the same time.

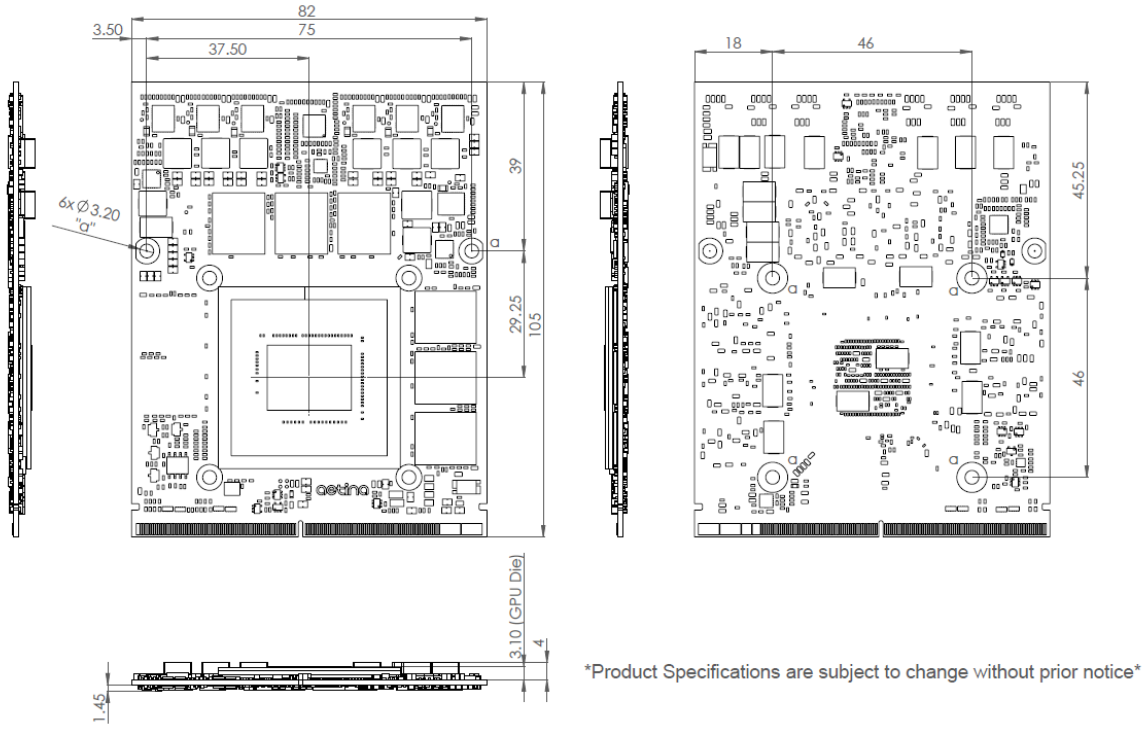
- Digital Output
  - The MX3500A-SA supports DisplayPort output.
- Analog Output
  - This model does not support Analog output.
- Display Options
  - The following list is MX3500A-SA graphics module display options.

Display Supported for Each Interface			
DP_A	DP_B	DP_C	DP_D
DisplayPort	DisplayPort	DisplayPort	DisplayPort

2.4 PCIE Express

The MX3500A-SA provides PCI Express x16 mechanism while data transmission via PCI Express 4.0 x16.

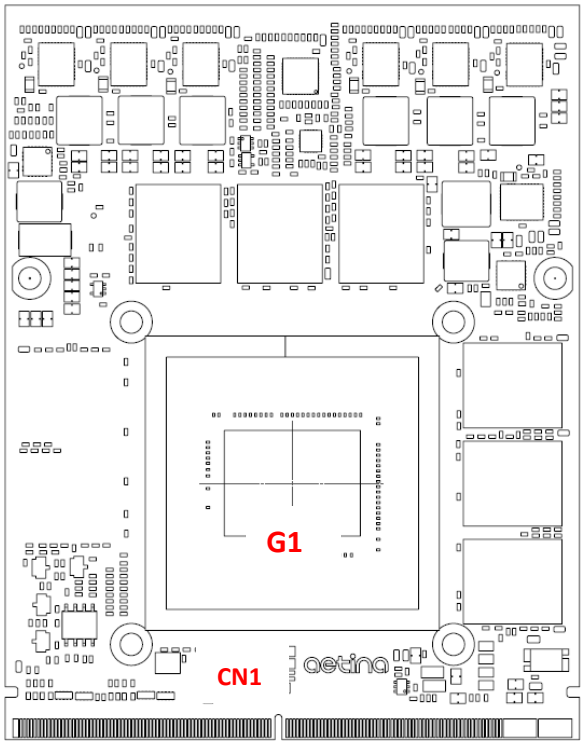
2.5 Mechanical Dimensions



Dimensions of MX3500A-SA

2.6 Pin Definition

- Board Interface

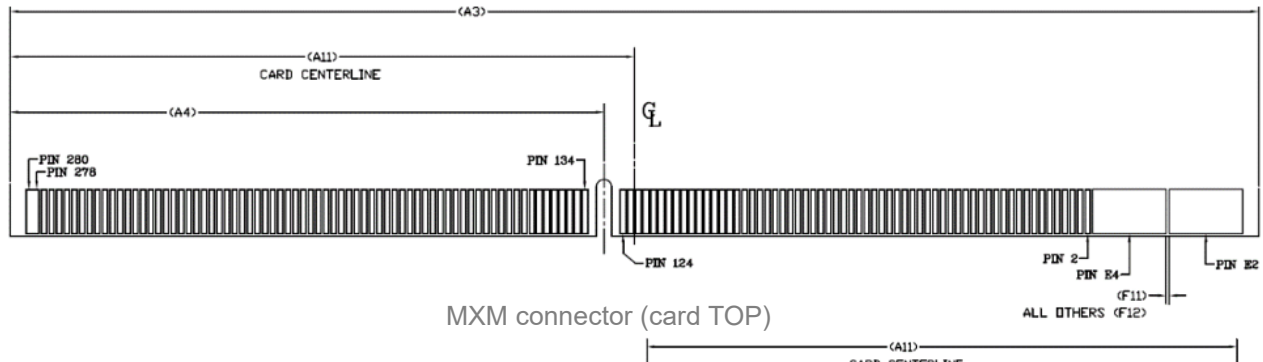


MXM Board layout

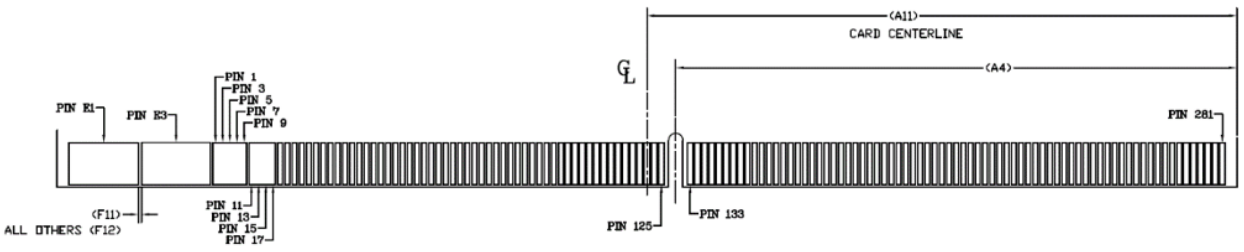
Specification	Describe
G1	NVIDIA RTX 3500 Ada Generation Embedded GPU
CN1	MXM connector (Golden Finger)

Board layout and connectors

- MXM Pin Assignments



MXM connector (card TOP)



MXM connector (card BOTTOM)

- MXM connector Pinout

Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N	Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N
E1	PWR_SRC	Y	E2	PWR_SRC	Y	141	PEX_RX1#	Y	142	PEX_TX1#	Y
E3	GND	Y	E4	GND	Y	143	PEX_RX1	Y	144	PEX_TX1	Y
1	5V	Y	2	PRSNT_R#	Y	145	GND	Y	146	GND	Y
3	5V	Y	4	WAKE#	N	147	PEX_RX0#	Y	148	PEX_TX0#	Y
5	5V	Y	6	PWR_GOOD (1.8V)	Y	149	PEX_RX0	Y	150	PEX_TX0	Y
7	5V	Y	8	PWR_EN	Y	151	GND	Y	152	GND	Y
9	5V	Y	10	27MHZ_REF	N	153	PEX_REFCLK#	Y	154	PEX_CLK_REQ#	Y
11	GND	Y	12	GND	Y	155	PEX_REFCLK	Y	156	PEX_RST#	Y
13	GND	Y	14	LVDS_U_HPD	N	157	GND	Y	158	VGA_DDC_DAT	N
15	GND	Y	16	PCH_RST*	Y	159	JTAG_TDO	N	160	VGA_DCC_CLK	N
17	GND	Y	18	PWR_LEVEL	Y	161	JTAG_TDI	N	162	VGA_VSYNC	N
19	PEX_STD_SW#	Y	20	TH_OVERT#	Y	163	JTAG_TCLK	N	164	VGA_HSYNC	N
21	VGA_DISABLE#	N	22	TH_ALERT#	Y	165	JTAG_TMS	N	166	GND	Y
23	PNL_PWR_EN	N	24	TH_PWM	N	167	JTAG_TRST#	N	168	VGA_RED	N
25	PNL_BL_EN	N	26	GPIO0	N	169	LVDS_UCLK#	N	170	VGA_GREEN	N
27	PNL_BL_PWN	N	28	GPIO1	N	171	LVDS_UCLK	N	172	VGA_BLUE	N
29	HDMI_CEC	N	30	GPIO2	N	173	GND	Y	174	GND	Y
31	LVDS_L_HPD	N	32	SMB_DAT	Y	175	LVDS_UTX3#	N	176	LVDS_LCLK#	N
33	LVDS_DDC_DAT	N	34	SMB_CLK	Y	177	LVDS_UTX3	N	178	LVDS_LCLK	N
35	LVDS_DDC_CLK	N	36	GND	Y	179	GND	Y	180	GND	Y
37	GND	Y	38	OEM0	N	181	LVDS_UTX2#	N	182	LVDS_LT3#	N
39	OEM1	N	40	OEM2	N	183	LVDS_UTX2	N	184	LVDS_LT3	N
41	OEM3	N	42	OEM4	N	185	GND	Y	186	GND	Y
43	OEM5	N	44	OEM6	N	187	LVDS_UTX1#	N	188	LVDS_LT2#	N
45	OEM7	N	46	GND	Y	189	LVDS_UTX1	N	190	LVDS_LT2	N
47	GND	Y	48	PEX_TX15#	Y	191	GND	Y	192	GND	Y
49	PEX_RX15#	Y	50	PEX_TX15	Y	193	LVDS_UTX0#	N	194	LVDS_LT1#	N
51	PEX_RX15	Y	52	GND	Y	195	LVDS_UTX0	N	196	LVDS_LT1	N
53	GND	Y	54	PEX_TX14#	Y	197	GND	Y	198	GND	Y
55	PEX_RX14#	Y	56	PEX_TX14	Y	199	DP_C_L0#	Y	200	LVDS_LT0#	N
57	PEX_RX14	Y	58	GND	Y	201	DP_C_L0	Y	202	LVDS_LT0	N
59	GND	Y	60	PEX_TX13#	Y	203	GND	Y	204	GND	Y
61	PEX_RX13#	Y	62	PEX_TX13	Y	205	DP_C_L1#	Y	206	DP_D_L0#	Y
63	PEX_RX13	Y	64	GND	Y	207	DP_C_L1	Y	208	DP_D_L0	Y

MXM connector pinout (continued)

Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N	Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N
65	GND	Y	66	PEX_TX12#	Y	209	GND	Y	210	GND	Y
67	PEX_RX12#	Y	68	PEX_TX12	Y	211	DP_C_L2#	Y	212	DP_D_L1#	Y
69	PEX_RX12	Y	70	GND	Y	213	DP_C_L2	Y	214	DP_D_L1	Y
71	GND	Y	72	PEX_TX11#	Y	215	GND	Y	216	GND	Y
73	PEX_RX11#	Y	74	PEX_TX11	Y	217	DP_C_L3#	Y	218	DP_D_L2#	Y
75	PEX_RX11	Y	76	GND	Y	219	DP_C_L3	Y	220	DP_D_L2	Y
77	GND	Y	78	PEX_TX10#	Y	221	GND	Y	222	GND	Y
79	PEX_RX10#	Y	80	PEX_TX10	Y	223	DP_C_AUX#	Y	224	DP_D_L3#	Y
81	PEX_RX10	Y	82	GND	Y	225	DP_C_AUX	Y	226	DP_D_L3	Y
83	GND	Y	84	PEX_TX9#	Y	227	RSVD	IFPA_DP_HPD_R	228	GND	Y
85	PEX_RX9#	Y	86	PEX_TX9	Y	229	RSVD	IFPD_DP_HPD_R	230	DP_D_AUX#	Y
87	PEX_RX9	Y	88	GND	Y	231	RSVD	IFPC_DP_HPD_R	232	DP_D_AUX	Y
89	GND	Y	90	PEX_TX8#	Y	233	RSVD	IFPE_DP_HPD_R	234	DP_C_HPD	Y
91	PEX_RX8#	Y	92	PEX_TX8	Y	235	RSVD	N	236	DP_D_HPD	Y
93	PEX_RX8	Y	94	GND	Y	237	RSVD	N	238	RSVD	N
95	GND	Y	96	PEX_TX7#	Y	239	RSVD	N	240	3V3	Y
97	PEX_RX7#	Y	98	PEX_TX7	Y	241	RSVD	N	242	3V3	Y
99	PEX_RX7	Y	100	GND	Y	243	RSVD	N	244	GND	Y
101	GND	Y	102	PEX_TX6#	Y	245	RSVD	N	246	DP_B_L0#	Y
103	PEX_RX6#	Y	104	PEX_TX6	Y	247	RSVD	MXM_THERMDP_GPU	248	DP_B_L0	Y
105	PEX_RX6	Y	106	GND	Y	249	RSVD	MXM_THERMDN_GPU	250	GND	Y
107	GND	Y	108	PEX_TX5#	Y	251	GND	Y	252	DP_B_L1#	Y
109	PEX_RX5#	Y	110	PEX_TX5	Y	253	DP_A_L0#	Y	254	DP_B_L1	Y
111	PEX_RX5	Y	112	GND	Y	255	DP_A_L0	Y	256	GND	Y
113	GND	Y	114	PEX_TX4#	Y	257	GND	Y	258	DP_B_L2#	Y
115	PEX_RX4#	Y	116	PEX_TX4	Y	259	DP_A_L1#	Y	260	DP_B_L2	Y

MXM connector pinout (continued)

Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N	Pin	Signal (bottom)	Y/N	Pin	Signal (top)	Y/N
117	PEX_RX4	Y	118	GND	Y	261	DP_A_L1	Y	262	GND	Y
119	GND	Y	120	PEX_TX3#	Y	263	GND	Y	264	DP_B_L3#	Y
121	PEX_RX3#	Y	122	PEX_TX3	Y	265	DP_A_L2#	Y	266	DP_B_L3	Y
123	PEX_RX3	Y	124	GND	Y	267	DP_A_L2	Y	268	GND	Y
125	GND	Y	126	*KEY*		269	GND	Y	270	DP_B_AUX#	Y
127	*KEY*		128	*KEY*		271	DP_A_L3#	Y	272	DP_B_AUX	Y
129	*KEY*		130	*KEY*		273	DP_A_L3	Y	274	DP_B_HPD	Y
131	*KEY*		132	*KEY*		275	GND	Y	276	DP_A_HPD	Y
133	GND		134	GND	Y	277	DP_A_AUX#	Y	278	3V3	Y
135	PEX_RX2#	Y	136	PEX_TX2#	Y	279	DP_A_AUX	Y	280	3V3	Y
137	PEX_RX2	Y	138	PEX_TX2	Y	281	PRSNT_L#	Y			
139	GND	Y	140	GND	Y						

MXM connector pinout

Notes:

1. KEY = Key (or notch) on the PCB edge finger
2. PD = Pull-down resister on module
3. n.c. = Not Connect
4. Reserved = Reserved pin and do NOT connect on system
5. Y= Yes (Functional) / N= No Connection

3. Software Installation

Before you begin installing your new graphics card, please make sure you have the proper system requirements and have completed the required pre-installation tasks as outlined in this chapter.

3.1 System Recommended

- AMD Ryzen 7 or Intel Core i7 processor or latest.
- 16GB of system memory; 24GB or more recommended for better performance.
- Motherboard with available PCI Express® 4.0 ×16 lane MXM connection slot.
- Internet access for software installation.
- NVIDIA RTX 3500 Ada Embedded GPU supports resizable BAR1. User can optionally support resizable BAR1 with BAR1 size same as frame buffer size or greater than and must be power of two for the best performance.

Below is criteria must meet:

- SBIOS must support "Above 4GB decoding" feature to support resizable BAR1 size
- SBIOS must **enable** "Above 4G decoding" at default shipping configuration

- User should run full functional and stability test with resizable BAR1 VBIOS and SBIOS at DVT and PVT
- Operating System:
  - Windows® 10 - 11 64-bit
  - Linux® 64-bit

*Notes: The memory resource does not mean the system memory, 8G Bar1 size means 8G memory address resource and this memory access (PCI MMIO access) will be decoded to GPU, not system memory.

3.2 Performing a Quick Installation

Experienced users and system administrators can follow these brief instructions for installing Aetina graphics card. Other users should refer to the detailed installation instructions.

1. Uninstall the drivers and software for any installed graphics card(s).
2. Shut down and disconnect your computer system.
3. Remove any installed graphics card(s).
4. Install your new Aetina graphics card.
5. Reassemble and connect your computer system.
6. Install the Aetina graphics drivers from the Aetina official website.

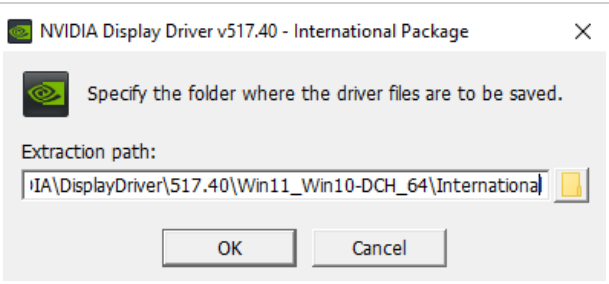
*Note: If you are using a motherboard containing an on-board graphics solution and do not intend to use it as part of a multiple monitor display, disable it.

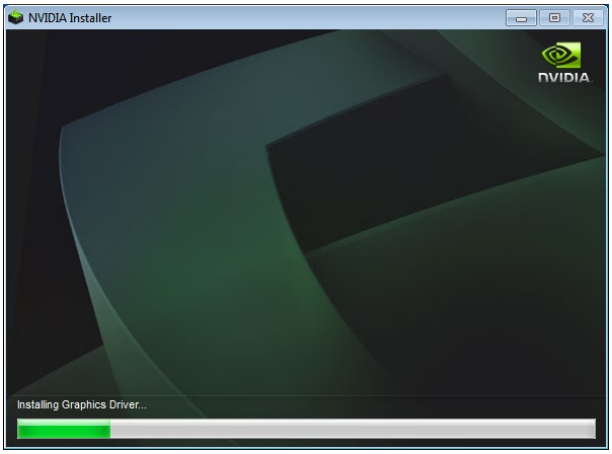
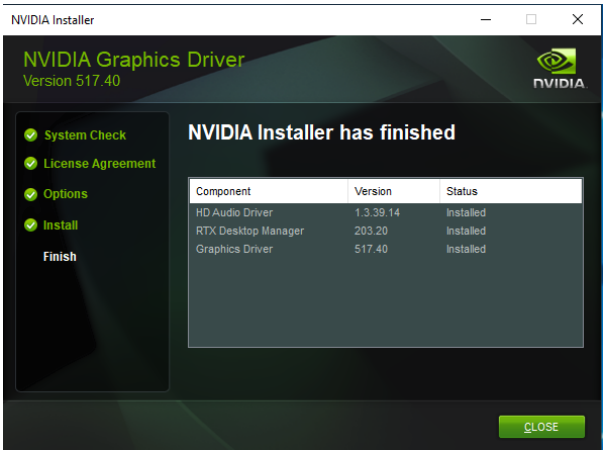
3.3 Install Graphics Driver

Notice the following guidelines before installing the drivers:

1. First uninstall previous graphics card driver.
2. Make sure your system has installed DirectX 11 or later version.
3. Make sure your system has installed the appropriate motherboard drivers (for the motherboard drivers, please contact the motherboard manufacturer).

After installing the operating system, download driver from Aetina official website. Then, go to My Computer, double-click the Download folder and execute the setup.exe program.

	● Click the “OK” button to install driver.
	● Click the “AGREE AND CONTINUE”
	● Choose “Express (Recommended)” or “Custom (Advanced)” then click “NEXT”

	• The system is installing the components
	• Click the “RESTART NOW” button to restart the computer. Then the driver installation is done

4. Initial Setup

4.1 Thermal Specifications

Thermal Specification

Parameter	Value
Thermal Resistance (Junction to Case, R_{JC})	0.023°C/W
Thermal Resistance (Junction to PCB, R_{JB})	1.236°C/W
GPU shutdown temperature (OVERT) (Note 1)	100°C
GPU slowdown temperature (THERM_ALERT) (Note 2)	97°C
GPU maximum operating temperature (Note 3)	89°C
GPU target temperature	87°C (default). 75°C (minimum)

Thermal Design Power (TDP)	Value
Total Graphics Power (TGP)	115W
GPU TDP (Note 4)	89W
Memory TDP (Note 5)	30W

Notes:

1. OVERT results in an 87.5% (÷8) hardware clock slowdown.
2. THERM_ALERT results in a 50% (÷2) hardware clock slowdown.
3. The GPU max operating temperature is the max GPU temperature at which the GPU is guaranteed to operate at the target performance (Base Clock) under worst case TDP test conditions

* Depending on the workload, the shutdown may be triggered at a higher temperature than the specified shutdown temperature.

*The GPU clock slowdown temperature trigger points in the specifications may vary depending on the workload. Additionally, the data may differ based on the thermal solution.

4. GPU TDP = GPU core + GPU FBIO + PCIe + IO/PLLVDD + Other. TDP is achievable when running GPU Heater if the system meets the GPU max operating temperature specification.
5. Memory TDP = Memory core + Memory IO. These values are with nominal memory and are taken without temperature control on memory. Refer to memory manufacturer for absolute ratings.
6. Power is based on PCI Express Gen4 x16 / Gen3 x16, ASPM disabled.

4.2 Power Delivery Design Requirement

For given design conditions such as ambient temperature, derating requirement, thermal solution, space constraint, cost target, and so on, the aim of power supply design can be categorized into two main areas:

- To sustain continuous (DC) current (EDPc) with the target efficiency and thermal performance.
- To achieve a target output voltage overshoot/undershoot spec (or generally referred to noise or peak-to-peak noise spec) under a specified large load transient event (EDPp)

The following are EDP currents available per GPU SKU for regulator design:

- Input EDP continuous (Input EDPc)

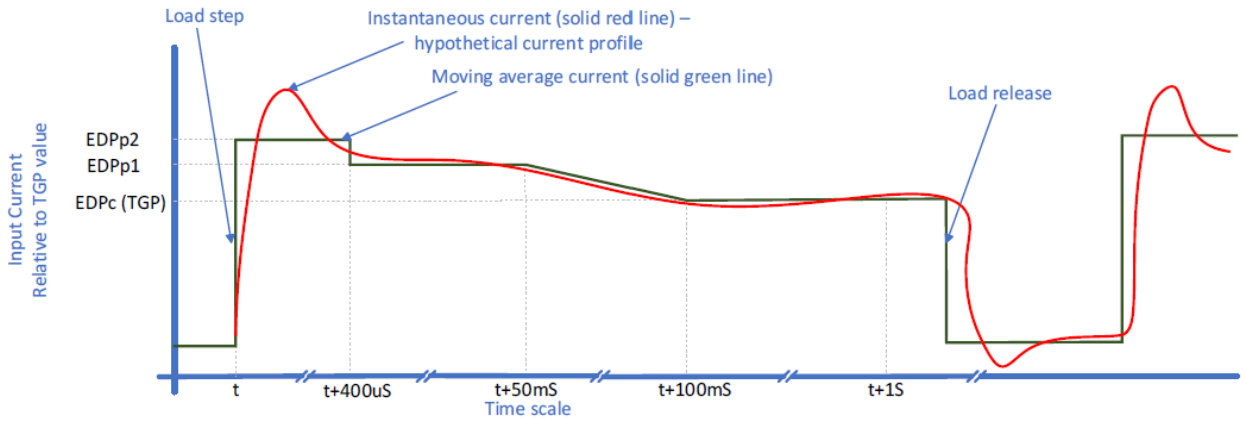
Input EDPc is the average input current consumption of the graphics subsystem, measured at a 1 second moving average. Thus, input EDPc is the maximum sustained DC current that the system power supply needs to provide.

- Input EDP peak (Input EDPp)

Input EDP peak is defined as the maximum input current for the graphics subsystem, measured at 400 µs and at 50 ms moving average. For MXM designs, the input current is measured at the MXM connector's PWR_SRC pin.

The maximum duration of the input EDPp current is 50 ms. After 50 ms worst case, the software power-capping mechanism will kick in and reduce power by lowering the VF (voltage-frequency) operating point until the EDPc average current levels are restored.

Timing Diagram for Input EDPp and Input EDPc Response Time



Note: Two power control mechanisms are used to limit the input current:

- Hardware power control (ICL) is used to limit the input EDP peak magnitude and duration. The maximum duration of the input EDPp is 50 ms.
- Software power control is used to restore the input power consumption back to the input EDP continuous (average power) level. The input EDPc value is restored within 100 ms.

4.3 Electrical Specifications

The NVIDIA RTX 3500 Ada Embedded GPUs specify the Input EDP (Electrical Design Point) parameters for system level power supply design purposes. Two parameters are provided, Input EDP continuous (EDPc) and Input EDP-peak (EDPp). These two parameters are part of an input power control system consisting of hardware power control to limit Input EDPp levels and a software power-capping control to limit Input EDPc levels.

GPU Input EDP Specifications

Input EDPp and Input EDPc Specifications

GPU	Power Source and Input Voltage (V)	Input EDPp (400 µs)[2] (A)	Input EDPp (1 ms)[2,3] (A)	Input EDPp (50 ms)[2,3] (A)	Input EDPc (1 sec)[1] (W)
RTX 3500 Ada Embedded	AC adapter (19V)	22	19	13	135 to 150
	AC adapter (19V)	19	15	10	110 to 134
	AC adapter (19V)	12	11	8	35 to 109

Notes:

[1] Input EDPc current can be calculated with the following equation.

$$Input\ EDPc\ Current\ (A) = \frac{\text{Input EDPc Power (W)}}{\text{Input Voltage (V)}}$$

[2] Input EDPp current at different input voltage can be calculated with the following equation:

$$Input\ EDPp\ (A) at\ V_{new} = Input\ EDPp(A) at\ 19Vx\ \frac{19\text{V}}{V_{new}(\text{V})}$$

[3] Optionally, partners can lower the Input EDPp limit for 1 ms and 50 ms to meet the AC adapter requirements. Contact your NVIDIA AE for VBIOS updates.

5. Appendix

5.1 Ordering Information

- **Models available**

Model Number	Description
MX3500A-SAA-A1	MXM-B, NVIDIA RTX 3500 ADA, Gen4.0 x16, 12GB GDDR6, DP, 115W, 0°C to +55°C
MX3500A-SAA-A2	MXM-B, NVIDIA RTX 3500 ADA, Gen4.0 x16, 12GB GDDR6, DP, 80W, 0°C to +55°C
MX3500A-SAG-A1	MXM-B, NVIDIA RTX 3500 ADA, Gen4.0 x16, 12GB GDDR6, DP, 80W, -40°C to +70°C

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