

1.Specifications:

Model	MM3080B6-16G
GPU Architecture	NVIDIA Ampere
Graphics Processing Unit	NVIDIA GeForce RTX3080 Mobility
NVIDIA CUDA Core	6144
Bus Type	MXM3 .1 / up to PCI Express 4.0
Graphics Clock	1110MHz / 1545MHz (Boost)
Tensor Core	192
RT Core	48
Single Precision FLOPS	17525GFLOPS
Double Precision FLOPS	329.9GFLOPS
Memory Size	16G 256bit GDDR6
Memory Clock	1750MHz (14.0 Gbps)
Memory Bandwidth	448.0GB/s
Display Features	DP_A: Display Port1.4++ DP_B: HDMI2.1 DP_C: HDMI2.1 DP_D: Display Port1.4++
Max Resolution	DP:7680x4320@120Hz HDMI: 7680x4320@60Hz
Board Power	135W (Option 110W)
Board Dimensions	MXM Graphics Module Version 3.1 Type B (105x82mm)
Number of output Channel	4
Operation System	Windows 11/10 64bit · Linux
VIN Range	DC 12~19V, 3.3V & 5V; +/-5%

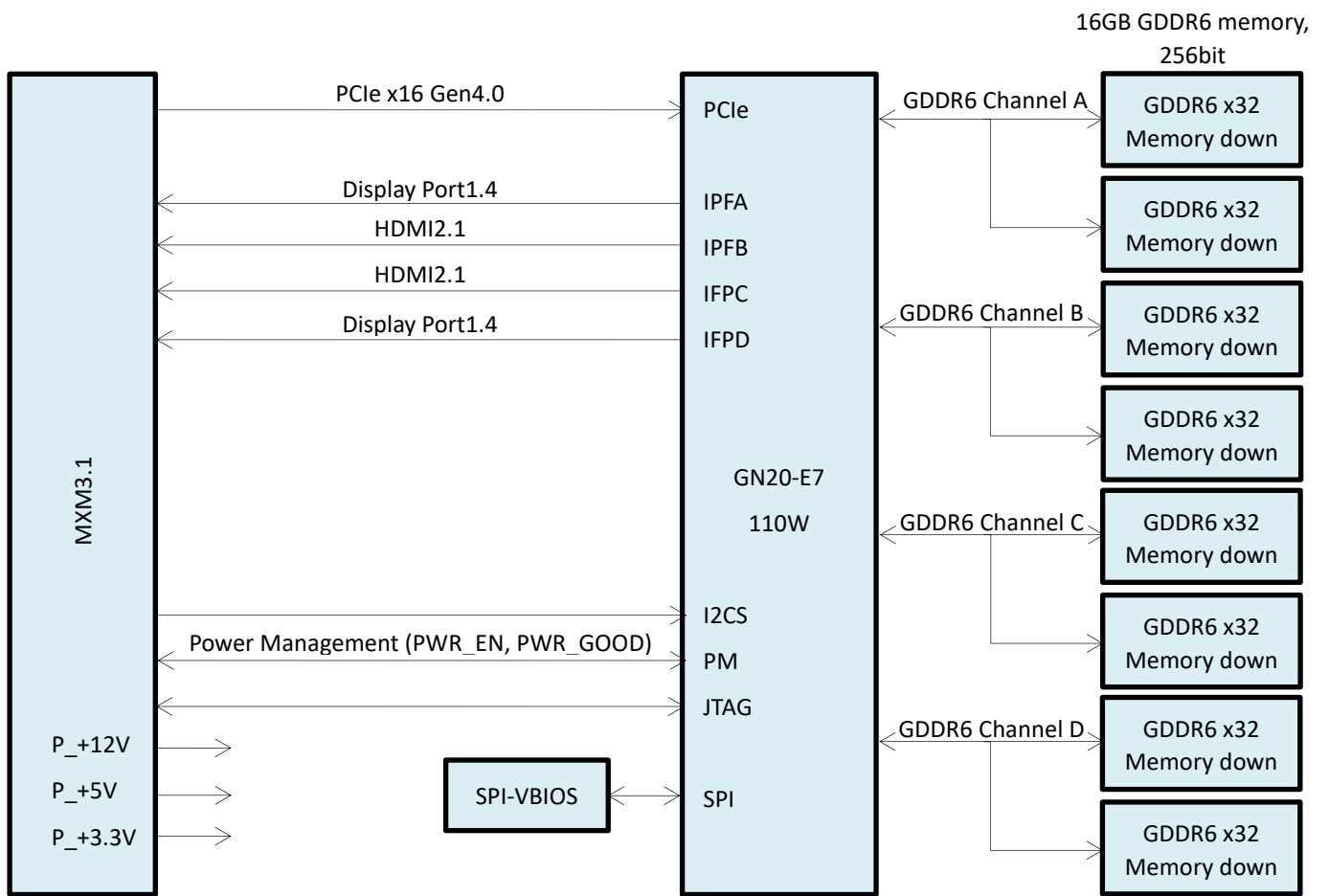
OpenGL	4.6
OpenCL	1.2
DirectX	12
Video Playback	H.265, VC1, MPEG2 1080P

Operating Temperature	0~45°C(Option -20°C)
Storage Temperature	-20~75°C
Operating Humidity	0~95% (non-condensing)
Storage Humidity	10~90%

Surround (Landscape)	Surround (Portrait)
2x1(3840x1080@60Hz)	2x1(2160x1920@60Hz)
1x2(1920x2160@60Hz)	1x2(1080x3840@60Hz)
3x1(5760x1080@60Hz)	3x1(3240x1920@60Hz)
1x3(1920x3240@60Hz)	1x3(1080x5760@60Hz)
4x1(7680x1080@60Hz)	4x1(1080x7680@60Hz)
1x4(7680x1080@60Hz)	1x4(1080x7680@60Hz)
2x2(3840x2160@60Hz)	2x2(2160x3840@60Hz)

**Total resolution based on every display resolution is 1920*1080@60Hz.*

2.Block Diagram:



3.Connector Pinout:

Table 3.1, Table 3.2 and Table 3.3 list the connector pinout.

Table 3.1: Connector Pinout

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
E1	PWR_SRC	E2	PWR_SRC	51	PEX_RX15	52	GND
E3	GND	E4	GND	53	GND	54	PEX_TX14#
1	5V	2	PRSNT_R	55	PEX_RX14#	56	PEX_TX14
3	5V	4	WAKE	57	PEX_RX14	58	GND
5	5V	6	PWR_GOOD	59	GND	60	PEX_TX13#
7	5V	8	PWR_EN	61	PEX_RX13#	62	PEX_TX13
9	5V	10	27MHZ_REF	63	PEX_RX13	64	GND
11	GND	12	GND	65	GND	66	PEX_TX12#
13	GND	14	LVDS_U_HPD DP_F_HPD	67	PEX_RX12#	68	PEX_TX12
15	GND	16	RSVD	69	PEX_RX12	70	GND
17	GND	18	PWR_LEVEL	71	GND	72	PEX_TX11#
19	PEX_STD_SW#	20	TH_OVERT#	73	PEX_RX11#	74	PEX_TX11
21	VGA_DISABLE#	22	TH_ALERT#	75	PEX_RX11	76	GND
23	N/A	24	TH_PWM	77	GND	78	PEX_TX10#
25	N/A	26	GPIO0	79	PEX_RX10#	80	PEX_TX10
27	N/A	28	GPIO1	81	PEX_RX10	82	GND
29	HDMI_CEC	30	GPIO2	83	GND	84	PEX_TX9#
31	LVDS_L_HPD DP_E_HPD	32	SMB_DAT	85	PEX_RX9#	86	PEX_TX9
33	LVDS_DDC_DAT NC	34	SMB_CLK	87	PEX_RX9	88	GND
35	LVDS_DDC_CLK NC	36	GND	89	GND	90	PEX_TX8#
37	GND	38	OEM0	91	PEX_RX8#	92	PEX_TX8
39	OEM1	40	OEM2	93	PEX_RX8	94	GND
41	OEM3	42	OEM4	95	GND	96	PEX_TX7#
43	OEM5	44	OEM6	97	PEX_RX7#	98	PEX_TX7
45	OEM7	46	GND	99	PEX_RX7	100	GND
47	GND	48	PEX_TX15#	101	GND	102	PEX_TX6#
49	PEX_RX15#	50	PEX_TX15	103	PEX_RX6#	104	PEX_TX6

Table 3.2: Connector Pinout(continued)

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
105	PEX_RX6	106	GND	153	PEX_REFCLK#	154	PEX_CLK_REQ#
107	GND	108	PEX_TX5#	155	PEX_REFCLK	156	PEX_RST#
109	PEX_RX5#	110	PEX_TX5	157	GND	158	N/A
111	PEX_RX5	112	GND	159	JTAG_TDO	160	N/A
113	GND	114	PEX_TX4#	161	JTAG_TDI	162	N/A
115	PEX_RX4#	116	PEX_TX4	163	JTAG_TCLK	164	N/A
117	PEX_RX4	118	GND	165	JTAG_TMS	166	GND
119	GND	120	PEX_TX3#	167	JTAG_TRST#	168	N/A
121	PEX_RX3#	122	PEX_TX3	169	DP_F_L3 LVDS_UCLK#	170	N/A
123	PEX_RX3	124	GND	171	DP_F_L3 LVDS_UCLK	172	N/A
125	GND	126	KEY	173	GND	174	GND
127	KEY	128	KEY	175	DP_F_AUX LVDS_UTX3#	176	DP_E_L3 LVDS_LCLK#
129	KEY	130	KEY	177	DP_F_AUX LVDS_UTX3	178	DP_E_L3 LVDS_LCLK
131	KEY	132	KEY	179	GND	180	GND
133	GND	134	GND	181	DP_F_L0 LVDS_UTX2#	182	DP_E_AUX LVDS_LTX3#
135	PEX_RX2#	136	PEX_TX2#	183	DP_F_L0 LVDS_UTX2	184	DP_E_AUX LVDS_LTX3
137	PEX_RX2	138	PEX_TX2	185	GND	186	GND
139	GND	140	GND	187	DP_F_L1 LVDS_UTX1#	188	DP_E_L0 LVDS_LTX2#
141	PEX_RX1#	142	PEX_TX1#	189	DP_F_L1 LVDS_UTX1	190	DP_E_L0 LVDS_LTX2
143	PEX_RX1	144	PEX_TX1	191	GND	192	GND
145	GND	146	GND	193	DP_F_L2 LVDS_UTX0#	194	DP_E_L1 LVDS_LTX1#
147	PEX_RX0#	148	PEX_TX0#	195	DP_F_L2 LVDS_UTX0	196	DP_E_L1 LVDS_LTX1
149	REX_RX0	150	PEX_TX0	197	GND	198	GND
151	GND	152	GND	199	DP_C_L0#	200	DP_E_L2 LVDS_LTX0#

Table 3.3: Connector Pinout(continued)

Pin	Signal Name	Pin	Signal Name
201	DP_C_L0	202	DP_E_L2 LVDS_LTX0
203	GND	204	GND
205	DP_C_L1#	206	DP_D_L0#
207	DP_C_L1	208	DP_D_L0
209	GND	210	GND
211	DP_C_L2#	212	DP_D_L1#
213	DP_C_L2	214	DP_D_L1
215	GND	216	GND
217	DP_C_L3#	218	DP_D_L2#
219	DP_C_L3	220	DP_D_L2
221	GND	222	GND
223	DP_C_AUX#	224	DP_D_L3#
225	DP_C_AUX	226	DP_D_L3
227	RSVD	228	GND
229	RSVD	230	DP_D_AUX#
231	RSVD	232	DP_D_AUX
233	RSVD	234	DP_C_HPDP
235	RSVD	236	DP_D_HPDP
237	RSVD	238	RSVD
239	RSVD	240	3V3
241	RSVD	242	3V3

Pin	Signal Name	Pin	Signal Name
243	RSVD	244	GND
245	RSVD	246	DP_B_L0#
247	RSVD	248	DP_B_L0
249	RSVD	250	GND
251	GND	252	DP_B_L1#
253	DP_A_L0#	254	DP_B_L1
255	DP_A_L0	256	GND
257	GND	258	DP_B_L2#
259	DP_A_L1#	260	DP_B_L2
261	DP_A_L1	262	GND
263	GND	264	DP_B_L3#
265	DP_A_L2#	266	DP_B_L3
267	DP_A_L2	268	GND
269	GND	270	DP_B_AUX#
271	DP_A_L3#	272	DP_B_AUX
273	DP_A_L3	274	DP_B_HPDP
275	GND	276	DP_A_HPDP
277	DP_A_AUX#	278	3V3
279	DP_A_AUX	280	3V3
281	PRSNT_L	-	

4.MXM Connector:

Figure 4.1 MXM Connector (Card Top)

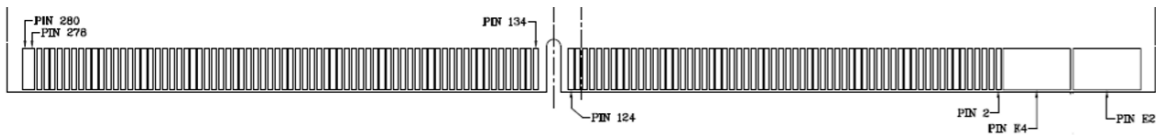
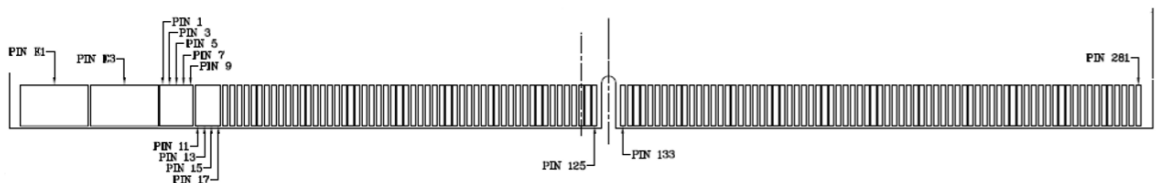


Figure 4.2 MXM Connector (Card Bottom)



5. Power Group:

Table 5.1 shows the MXM module power requirements. The voltage tolerances in the table are specified as measured on module edge finger. The system must be able to supply the full specified current on rails (except PWR_SRC) at all times. The current capability of the PWR_SRC rail must be defined by the system in the MXM system information structure.

Table 5.1: MXM Power Rails

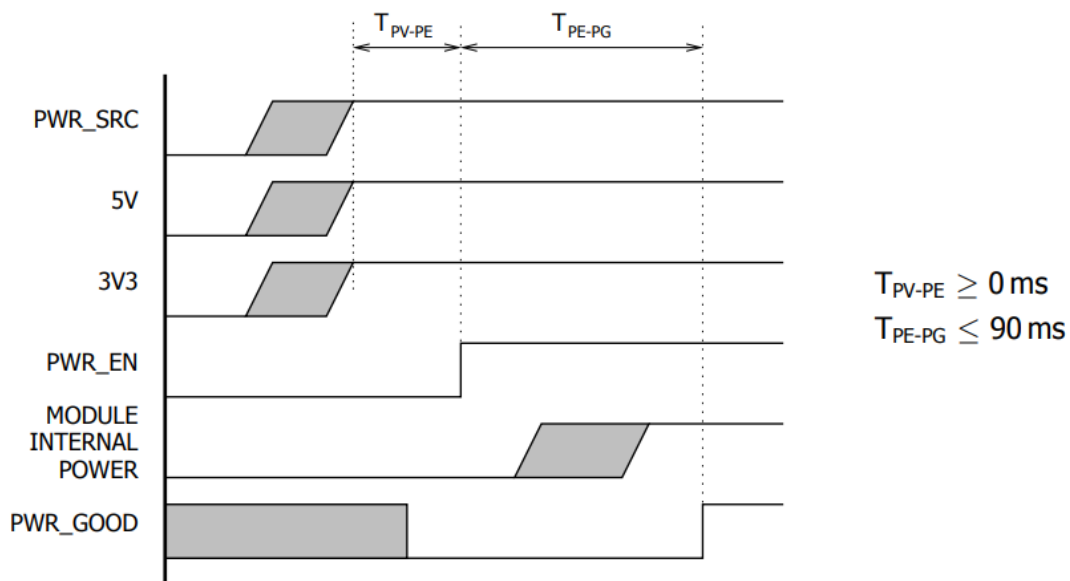
Signal Name	I/O	Type	Impedance	Voltage	Current
PWR_SRC	I	Power	N/A	12-19V	up to 10A
5V	I	Power	N/A	5.0V \pm 6%	2.5A
3.3V	I	Power	N/A	3.3V \pm 6%	2.0A

Note: PWR_SRC voltage range is assumed to be DC or RMS. However under any circumstances the maximum peak voltage shall not exceed 22V and minimum voltage shall not fall below 6.5V.

6. Power Sequencing:

There is no power sequencing requirement for the input voltages to the MXM module. However the PWR_EN signal may be asserted only after all power rails are within specified tolerance. The state of PWR_GOOD is undefined until all rails are fully ramped. Refer to Figure 6.1 for details

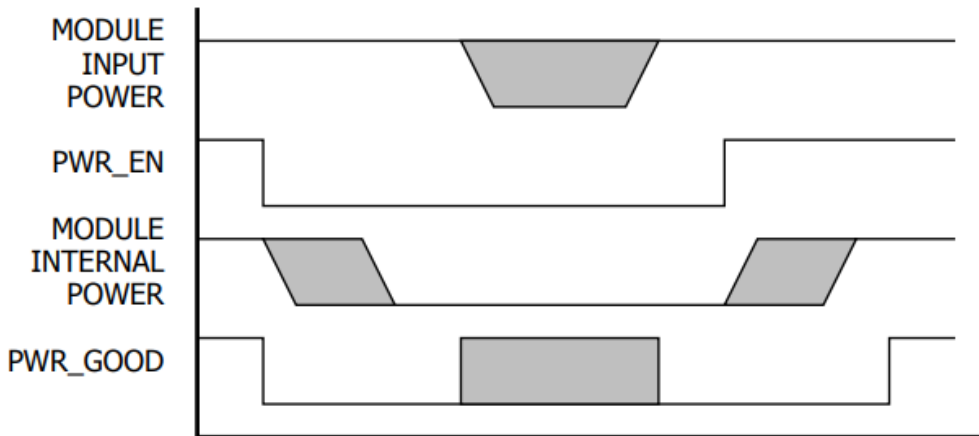
Figure 6.1 Power Sequencing



7. Module Power Down and Power Up:

The MXM module may be powered down using the PWR_EN signal. The system designer may choose to shut down or keep the input power while the module is powered down. Refer to Figure 7.1 for details.

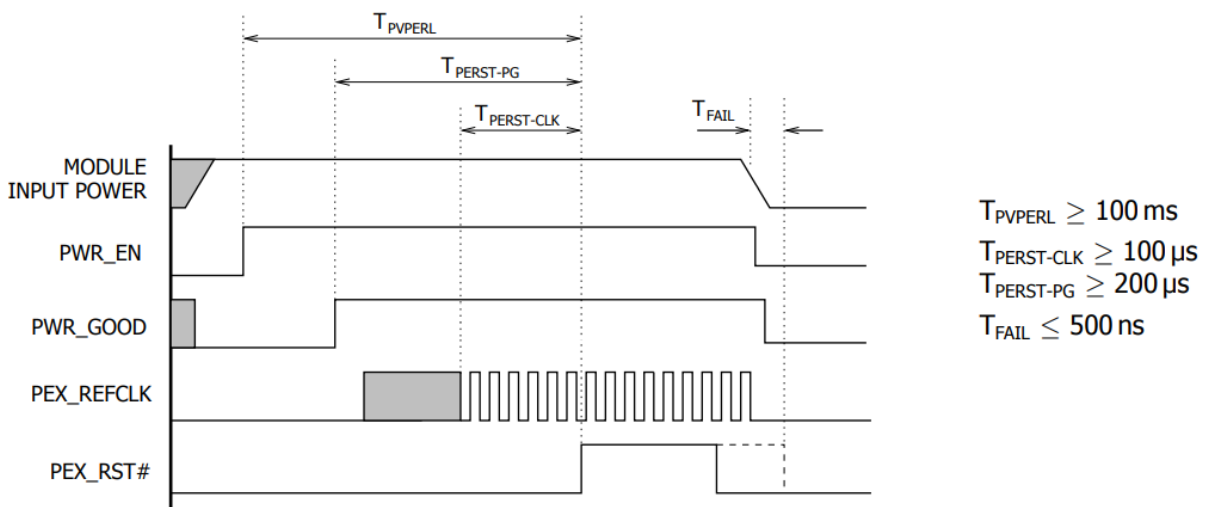
Figure 7.1 Module Power Down



8. Reset Requirements:

System reset may be deasserted only after the assertion of the PWR_GOOD signal. Figure 8.1 shows the reset requirements relative to the PWR_EN and PWR_GOOD signals. This sequence must be followed on initial power on, system reset and resume from suspend/hibernate.

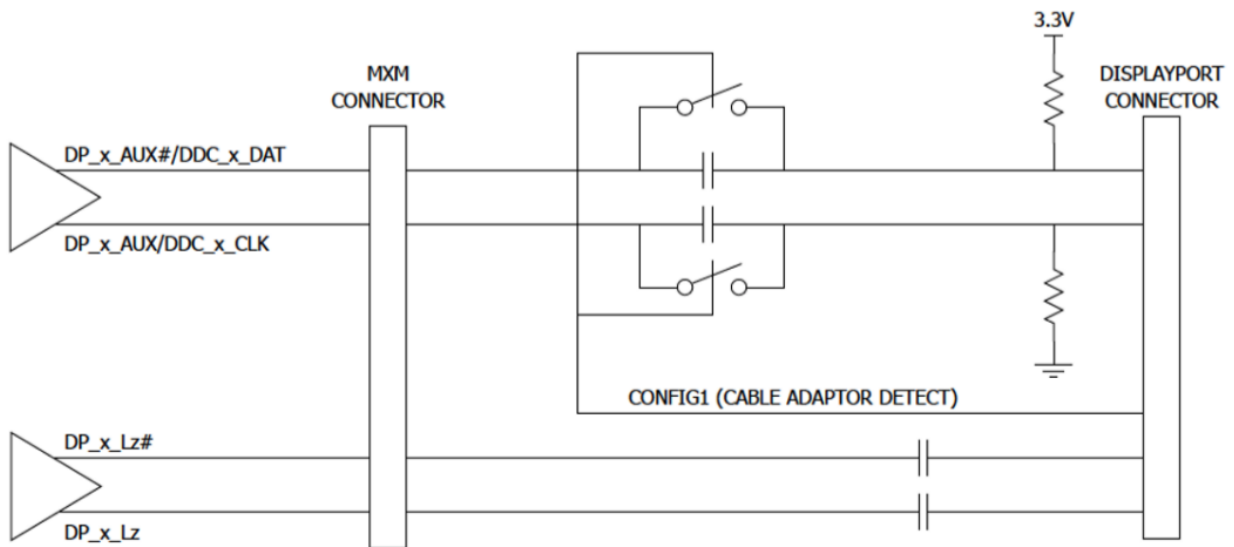
Figure 8.1 Reset Sequencing



9.DisplayPort Interface:

DC blocking capacitors of DisplayPort must be placed on the system board. In addition to the MXM implementation of Dual-mode DisplayPort requires the circuit in Figure 9.1 on the AUX lines for proper dongle detection. The HPD signal conditioning must also be placed on the system board.

Figure 9.1 Dual-mode DisplayPort Implementation



10.DVI/HDMI on DP Interface:

Native DVI or HDMI connector support can be implemented using a DisplayPort interface.

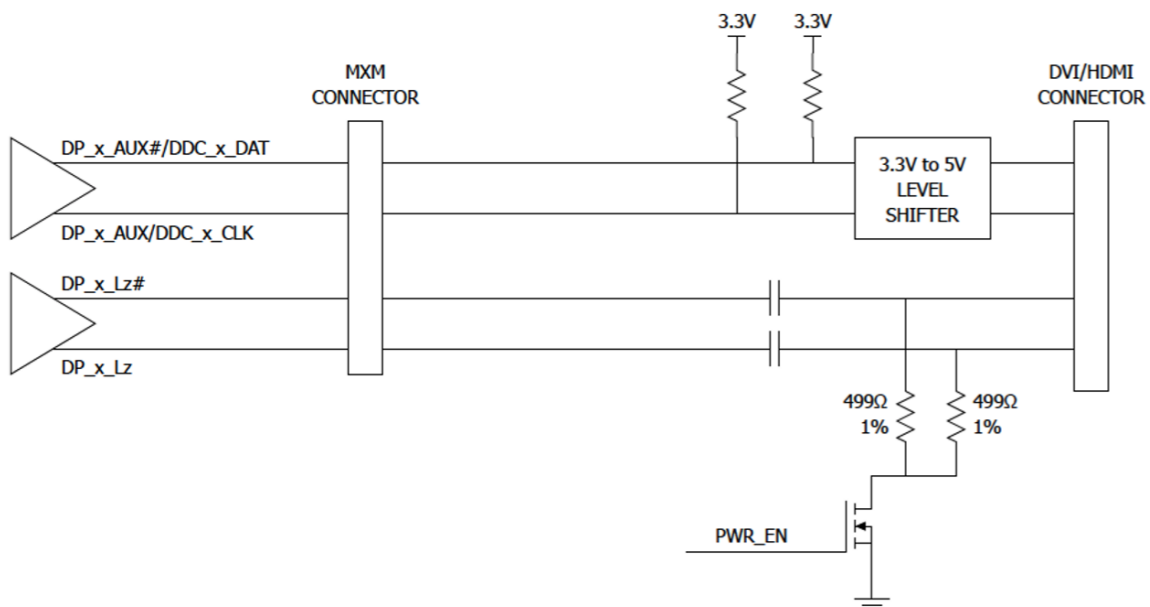
Additional circuitry is required on the system and the proper signal mapping must be observed. As Figure 10.1 shows, 499Ω 1% pull-down resistors to ground on the DP lane signals must be placed on the connector side of AC coupling capacitors gated by a FET to limit the leakage. Additionally level shifting circuits must also be implemented on DDC Data and Clock.

Table 10.1 shows the mapping to connect the signals from the MXM connector to the HDMI/DVI connector.

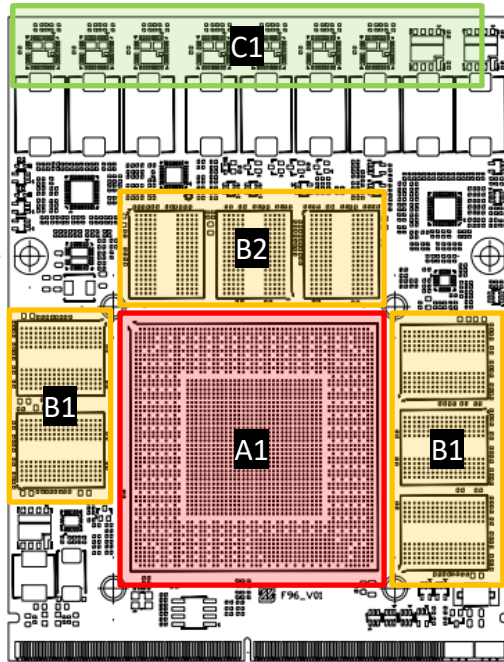
Table 10.1: DisplayPort Multiplexed Signal Definition

Pin Name	DVI/HDMI
DP_xL0	TX_x_D2
DP_xL0#	TX_x_D2#
DP_x_L1	TX_x_D1
DP_x_L1#	TX_x_D1#
DP_x_L2	TX_x_D0
DP_x_L2#	TX_x_D0#
DP_x_L3	TX_x_CLK
DP_x_L3#	TX_x_CLK#
DP_x_AUX	DDC_x_CLK
DP_x_AUX#	DDC_x_DAT

Figure 10.1 DVI/HDMI Implementation Using DP Interface



11.Thermal:



Components	Area	TDP	Height
GPU	A1	105.5W	2.8mm
Memory	B1、B2	2W*3	0.9mm
Memory	B3	2W*2	0.9mm
Mosfet	C1	1.5W*9	0.75mm

Chipset		Specification
Dimensions		20*15mm
Stress	Maximum	75 PSI
	Normal	30-40 PSI

Cooling Suggestion:

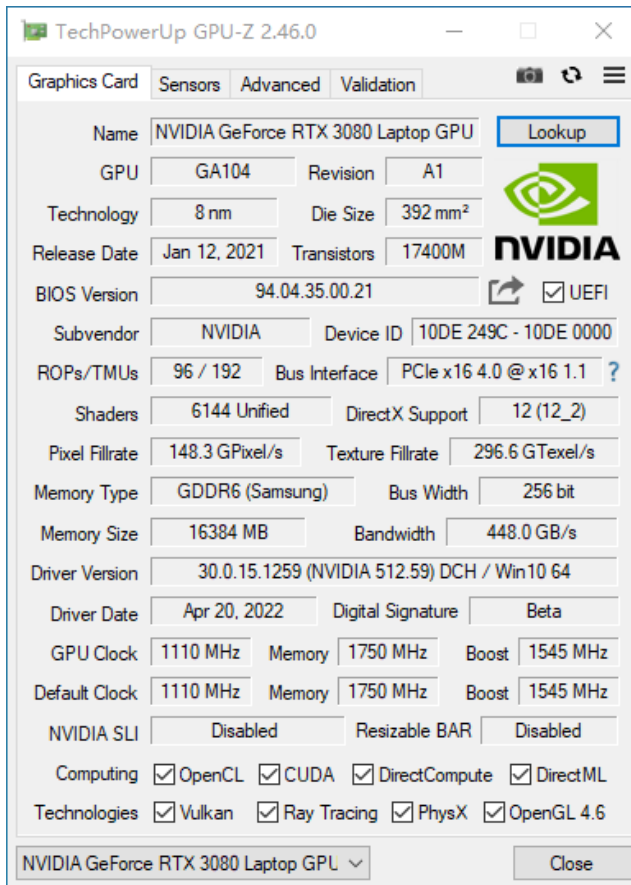
- 1、显卡建议先固定在散热器上，散热器外径为 4mm，M2 的螺柱。
- 2、散热器的重量要用箱体来支撑固定。
- 3、显存和 MOS 要加导热垫。

Components	壳温满载限温（环温 45℃）
GPU	95℃
Memory	85℃
Mosfet	105℃

*显存和 MOS 由“探针”监测；GPU 由“Furmark（1920*1080）”监测。

12.Performance:

3Dmark13	FS:29210 FSE:14281 FSU:7180
3Dmark11	E27347 P24589 X12940
3Dmark Vantage	89485
Heaven	4489
鲁大师	422411
glmark2	12573



TechPowerUp GPU-Z 2.46.0

Graphics Card: Sensors Advanced Validation

Name: NVIDIA GeForce RTX 3080 Laptop GPU

GPU: GA104 Revision: A1

Technology: 8 nm Die Size: 392 mm²

Release Date: Jan 12, 2021 Transistors: 17400M

BIOS Version: 94.04.35.00.21

Subvendor: NVIDIA Device ID: 10DE 249C - 10DE 0000

ROPs/TMUs: 96 / 192 Bus Interface: PCIe x16 4.0 @ x16 1.1

Shaders: 6144 Unified DirectX Support: 12 (12_2)

Pixel Fillrate: 148.3 GPixel/s Texture Fillrate: 296.6 GTexel/s

Memory Type: GDDR6 (Samsung) Bus Width: 256 bit

Memory Size: 16384 MB Bandwidth: 448.0 GB/s

Driver Version: 30.0.15.1259 (NVIDIA 512.59) DCH / Win10 64

Driver Date: Apr 20, 2022 Digital Signature: Beta

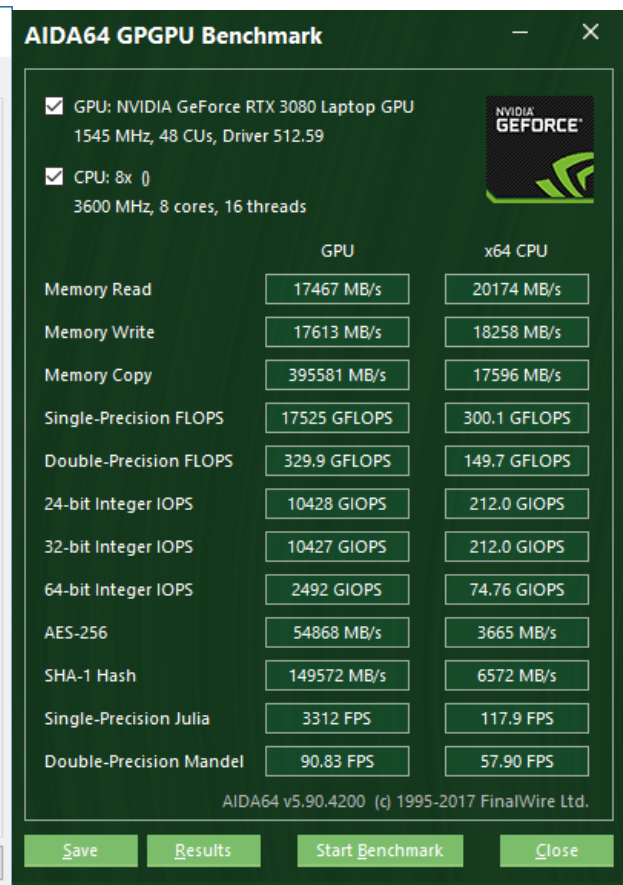
GPU Clock: 1110 MHz Memory: 1750 MHz Boost: 1545 MHz

Default Clock: 1110 MHz Memory: 1750 MHz Boost: 1545 MHz

NVIDIA SLI: Disabled Resizable BAR: Disabled

Computing: OpenCL CUDA DirectCompute DirectML

Technologies: Vulkan Ray Tracing PhysX OpenGL 4.6



AIDA64 GPGPU Benchmark

GPU: NVIDIA GeForce RTX 3080 Laptop GPU
1545 MHz, 48 CUs, Driver 512.59

CPU: 8x 0
3600 MHz, 8 cores, 16 threads

	GPU	x64 CPU
Memory Read	17467 MB/s	20174 MB/s
Memory Write	17613 MB/s	18258 MB/s
Memory Copy	395581 MB/s	17596 MB/s
Single-Precision FLOPS	17525 GFLOPS	300.1 GFLOPS
Double-Precision FLOPS	329.9 GFLOPS	149.7 GFLOPS
24-bit Integer IOPS	10428 GIOPS	212.0 GIOPS
32-bit Integer IOPS	10427 GIOPS	212.0 GIOPS
64-bit Integer IOPS	2492 GIOPS	74.76 GIOPS
AES-256	54868 MB/s	3665 MB/s
SHA-1 Hash	149572 MB/s	6572 MB/s
Single-Precision Julia	3312 FPS	117.9 FPS
Double-Precision Mandel	90.83 FPS	57.90 FPS

AIDA64 v5.90.4200 (c) 1995-2017 FinalWire Ltd.

Buttons: Save Results Start Benchmark Close

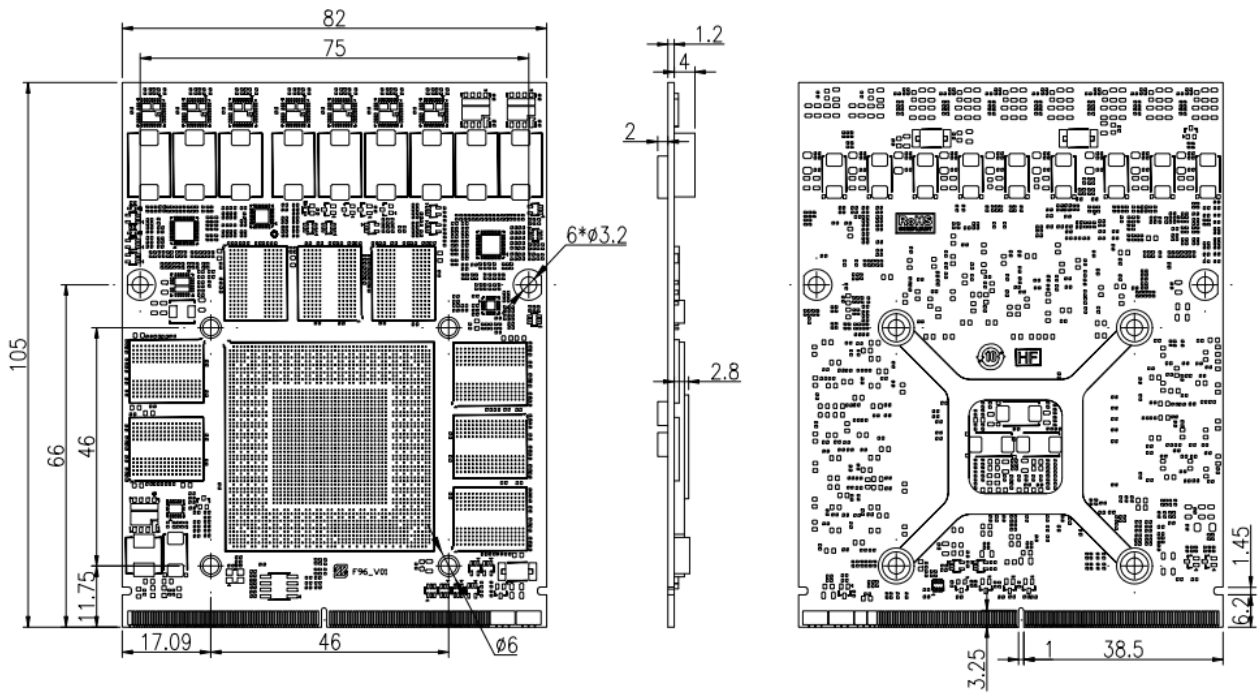
13.Driver:

Windows 11: <https://pan.baidu.com/s/1gRfmgXtcfWQXdESR-BZ-rQ?pwd=u10o>

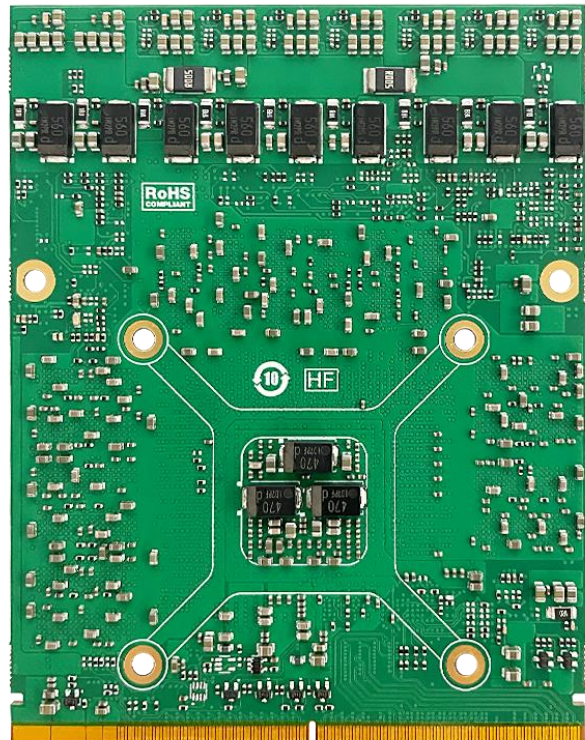
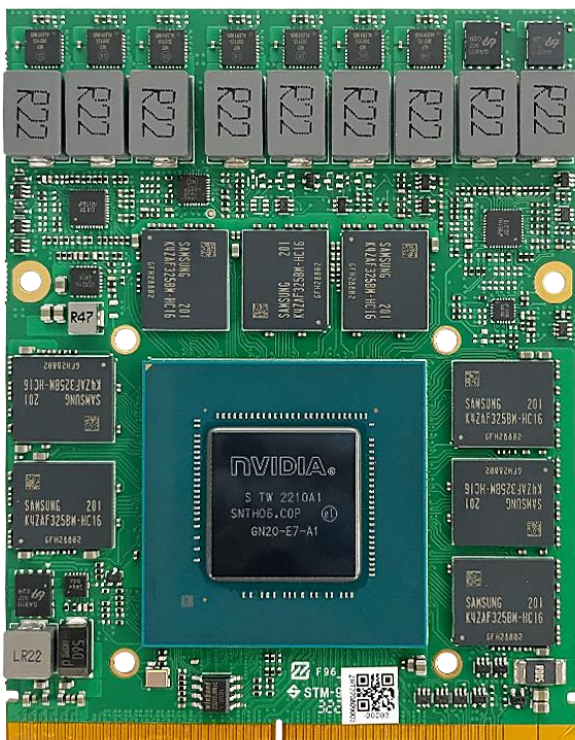
Windows 10 64bit: <https://pan.baidu.com/s/1gRfmgXtcfWQXdESR-BZ-rQ?pwd=u10o>

Linux: <https://pan.baidu.com/s/1GQpeuw81hSxCuLPLXm3U7Q?pwd=hefa>


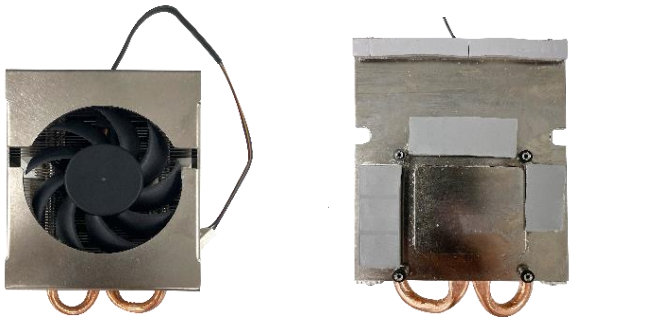
14. Dimensions:



15. Photo:



16.Cooling Option:

	1.ZRT.48-6350-00-A00 (For 120W)	
	Dimension	103*83*34mm
	Rated Speed	8000*2
	Out of Frame Lead Wires	200mm
	Connector	4Pin 2.54
	1.ZRT.48-6306-00-A00	
	Dimension	130*80*49.9mm
	Rated Speed	4500
	Out of Frame Lead Wires	200mm
	Connector	4Pin 2.54

17.Question:

故障	排除
不开机	<ol style="list-style-type: none"> 1、更改 pgood 信号。(部份主板) 2、确认 PCIE 复位信号。 3、主板 BIOS 更改为 UEFI BIOS。
不显示	<p>Windows 10 : (需 1809 版本之后) 在主板 BIOS 下, 将 CSM 中 CSM Support 设置由 Enabled 更改为 Disabled。</p> <p>Windows7 : 在主板 BIOS 下, 将 CSM 中 CSM Support 设置由 Enabled 更改为 Disabled, 并将 Video 设置由 legacy 更改为 UEFI。</p>
不显示 (HDMI 输出)	<ol style="list-style-type: none"> 1、4K 60Hz 显示屏, 确认 HDMI 线材是否为 HDMI2.0。 2、将显示器分辨率降为 2K 60Hz。
设备管理员出现惊叹号	<ol style="list-style-type: none"> 1、原系统显卡驱动删除干净。(请使用 Display Driver Uninstaller 删除, https://www.wagnardsoft.com/) 2、Windows 10 版本 16299 不支持, 需更新至最新版 (17763、17134 均可)。 3、Windows 7 打补丁 KB2685811。 4、确认核显驱动是否已安装。(不需独立显卡显示)
显卡不工作	量下 3V3/5V/2V/Reset 信号是否有电/短路? 若有电, 显卡就会工作。
安装 Linux 系统, 图	装驱动的时, 加上--no-opengl-files。

形界面异常/无限循环登陆界面，无法登录系统	(禁用 opengl，若系统上有用到这套组件，将无法使用)
控制面板无法正常开启	仅可在独显显示时，才能正常开启；若使用集显显示，将无法正常开启。
集显及独显在 Win7 下，无法同时开启 3D 启动	打系统补丁 (KB2685811)，解压后，把所有文件 COPY 到 C 盘 根目录下运行 BAT 文件。
X86 在中标麒麟系统下，显卡驱动后集显输出不能进系统	将 xorg.conf 文件内容清空。
显卡无法辨识：	<ul style="list-style-type: none"> ● 检查 PCIE LANE Numbering Reversal 设置。 ● 主要关注下上电和 pcie，确认下 <p>1、PCIE 的连接 (是否 0-15 反、差分正负反、x16 是否拆分，bios 可修改，软硬件要一致)，耦合电容是否少以及容值；协议兼容性 (降 gen1，或用 x1 试试，显卡都能支持 x1)</p> <p>2、信号质量，100MHz clk (示波器看下抖动，bios 是否有展频)，pcie 的信号质量 (看实际距离不长，概率不大，可以 bios 调不同的去加重、预加重值试试，能测试眼图最好)</p> <p>3、上电主要是给显卡的 enable 信号，其他的不影响开机，时序 (主板启动比显卡快，bios 可以对 reset 信号延时试试)</p>
设备管理器显示设备安装成功，但 GPU-Z 显存容量与主频显示为 0	<p>开机时按 DEL 键进 BIOS 设置中选择</p> <p>Chipset→System Agent (SA) Configuration→PCI Express Configuration→PCI Express Root Port 中的 ASPM 选着 Disabled</p> <p>(注：PCI Express Root port 所有选项中的 ASPM 都选着 Disabled.)</p>
Win11 系统下安装驱动会报缺少 clb.dll 文件	<p>clb.dll 档案拷贝放到 Win11 系统对应目录下 (如下) →重启系统→再安装显卡驱动。</p> <p>C:\windows\SysWOW64 -- (32bit)</p> <p>C:\Windows\WinSxS\wow64_microsoft-windows-registry-editor_31bf3856ad364e35_10.0.19041.746_none_dc7caa836f08ad57 --(32bit)</p> <p>C:\windows\system32 --(64bit)</p> <p>C:\Windows\WinSxS\amd64_microsoft-windows-registry-editor_31bf3856ad364e35_10.0.19041.746_none_d22800313aa7eb5c --(64bit)</p>

18.Part Number:

Model	Part Number	Specification
MM3080B6-16G	8.ZRT.80-8365-10-LFF	F96 RTX3080m 16G 256bit GDDR6 DP+HDMI+HDMI+DP MXM

		Type B-ZRT 彩包二十八
MM3080B6-16G(-20)	8.ZRT.80-8365-17-LFF	F96 RTX3080m 16G 256bit GDDR6 DP+HDMI+HDMI+DP MXM Type B 135W -20 度-ZRT 彩包二十八
MM3080B6-16G(110W)	8.ZRT.80-8365-12-LFF	F96 RTX3080m 16G 256bit GDDR6 DP+HDMI+HDMI+DP MXM Type B 110W-ZRT 彩包二十八