

GM850-RPF-Q670E GM850-RPF-H610E

14th/13th/12th Gen Intel® Processors
Gaming Embedded System



KEY FEATURES



High Performance CPU

14th/13th/12th Gen Intel® Processors



AI Accelerated

Support MXM GPU module (up to 125W)



Superior Graphic Engine

1 DP++(CPU), 1 DP++(MXM), 1 USB Type C(DP Alt-mode), 1 eDP(MXM), 1 internal HDMI(MXM)



Design for Gaming system

- Retain NVRAM Data for 5 Years during AC off
- 8 Intrusion Detection, 32 x DIDO, 8 x Meter, iButton x1, cctalk x2



Reliable Data Security

Jurisdiction BIOS, RSA & Hash Verification

FC CE

SPECIFICATION

Model Name		GM850-RPF-Q670E	GM850-RPF-H610E
SYSTEM	Processor	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ I9-14900 (24 Cores, 36M Cache, up to 5.8 GHz); 65W</p> <p>Intel® Core™ I9-14900T (24 Cores, 36M Cache, up to 5.5 GHz); 35W</p> <p>Intel® Core™ I7-14700 (20 Cores, 33M Cache, up to 5.4 GHz); 65W</p> <p>Intel® Core™ I7-14700T (20 Cores, 33M Cache, up to 5.2 GHz); 35W</p> <p>Intel® Core™ I5-14500 (14 Cores, 24M Cache, up to 5.0 GHz); 65W</p> <p>Intel® Core™ I5-14500T (14 Cores, 24M Cache, up to 4.8 GHz); 35W</p> <p>Intel® Core™ I5-14400 (10 Cores, 20M Cache, up to 4.7 GHz); 65W</p> <p>Intel® Core™ I5-14400T (10 Cores, 20M Cache, up to 4.5 GHz); 35W</p> <p>Intel® Core™ I3-14100 (4 Cores, 12M Cache, up to 4.7 GHz); 60W</p> <p>Intel® Core™ I3-14100T (4 Cores, 12M Cache, up to 4.4 GHz); 35W</p> <p>Intel® Core™ I300 (2 Cores, 6M Cache, 3.9 GHz); 46W</p> <p>Intel® Core™ I300T (2 Cores, 4M Cache, 3.4 GHz); 35W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ I9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W</p> <p>Intel® Core™ I9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W</p> <p>Intel® Core™ I7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W</p> <p>Intel® Core™ I7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W</p> <p>Intel® Core™ I7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W</p> <p>Intel® Core™ I5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W</p> <p>Intel® Core™ I5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W</p> <p>Intel® Core™ I5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W</p> <p>Intel® Core™ I5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W</p> <p>Intel® Core™ I3-13100E (4 Cores, 12M Cache, up to 3.3 GHz); 60W</p> <p>Intel® Core™ I3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W</p> <p>Intel® Core™ I3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W</p> <p>Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W</p> <p>Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W</p> <p>Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W</p> <p>Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W</p> <p>Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W</p> <p>Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W</p> <p>Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W</p> <p>Intel® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W</p> <p>Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W</p> <p>Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W</p> <p>Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p>	
	Chipset	Intel® Q670E Chipset	Intel® H610E Chipset
	Memory	2x 260-pin SODIMM up to 64GB Dual Channel DDR5 4800MHz	2x 260-pin SODIMM up to 64GB Dual Channel DDR5 4800MHz
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit
	GRAPHICS	Controller	Intel® HD Gen 9 Graphics
GRAPHICS	Feature	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/ WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/ WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9
	Display	1 x DP++ (CPU): Resolution up to 4096x2304 @ 60Hz 1 x DP++ (MXM): Resolution by MXM 1 x USB Type C: DP Alt-mode, Resolution up to 4096x2304 @60Hz 1 x eDP(MXM): Resolution by MXM 1 x Internal HDMI: Resolution by MXM	1 x DP++ (CPU): Resolution up to 4096x2304 @ 60Hz 1 x DP++ (MXM): Resolution by MXM 1 x USB Type C: DP Alt-mode, Resolution up to 4096x2304 @60Hz 1 x eDP(MXM): Resolution by MXM 1 x Internal HDMI: Resolution by MXM
	Multiple Displays	1 DP++(CPU) + 1 DP++(MXM) + 1 USB Type C(DP Alt-mode) + 1 eDP(MXM) + 1 internal HDMI(MXM)	1 DP++(CPU) + 1 DP++(MXM) + 1 USB Type C(DP Alt-mode) + 1 eDP(MXM) + 1 internal HDMI(MXM)
	STORAGE	Interface	1 x SATA 3.0 1 x 2.5" SSD Bay
EXPANSION	Interface	1 x M.2 2280 M Key (PCIe Gen3x4, SATA3) 1 x M.2 2230 E Key (PCIe Gen3x, USB 2.0, support Intel® CNVi) 1 x MXM Type-A/B/B+ (up to 125W) 1 x M.2 2242/3042/3052 B Key (PCIe Gen3x1, USB 3.2 Gen2, USB 2.0)	1 x M.2 2280 M Key (PCIe Gen3x4, SATA3) 1 x M.2 2230 E Key (PCIe Gen3x, USB 2.0, support Intel® CNVi) 1 x MXM Type-A/B/B+ (up to 125W) 1 x M.2 2242/3042/3052 B Key (PCIe Gen3x1, USB 3.2 Gen1, USB 2.0)
AUDIO	Audio Codec	Realtek ALC888S	Realtek ALC888S
ETHERNET	Controller	1 x Intel® I226LM(vPro) (10/100/1000/2500Mbps) 1 x Intel® I226V (10/100/1000/2500Mbps)	1 x Intel® I219V (10/100/1000/2500Mbps) 1 x Intel® I226V (10/100/1000/2500Mbps)
LED	Indicators	1 x Power LED 1 x HDD LED	1 x Power LED 1 x HDD LED

SPECIFICATION

Model Name		GM850-RPF-Q670E	GM850-RPF-H610E
I/O	Ethernet	2 x 2.5GHz RJ45	2 x 2.5GHz RJ45
	Serial	2 x RS-232/422/485 (DB-9) 2 x RS-232 (TX,RX)/ccTalk (Microfit)	2 x RS-232/422/485 (DB-9) 2 x RS-232 (TX,RX)/ccTalk (Microfit)
	USB	4 x USB 3.2 Gen2 or 3 x USB 3.2 Gen2 + 1 x USB Type C	2 x USB 3.2 Gen2 + 2 x USB 2.0 or 2 x USB 3.2 Gen2 + 1 x USB Type C
	Display	1 x DP++ 1 x DP++(MXM) 1 x HDMI (MXM) 1 x USB Type C	1 x DP++ 1 x DP++(MXM) 1 x HDMI (MXM) 1 x USB Type C
	Audio	1 Audio Jack (Line-out/Mic-in)	1 Audio Jack (Line-out/Mic-in)
	Cooling	1 x 8cm System Fan, with replaceable air filter	1 x 8cm System Fan, with replaceable air filter
	WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
GAMING	Intrusion Detection	8 x Intrusion detection Operates With and Without AC Power Logs Date/ Time of latest 64 events Coin Battery backup to Retain Data for 5 years during AC off	8 x Intrusion detection Operates With and Without AC Power Logs Date/ Time of latest 64 events Coin Battery backup to Retain Data for 5 years during AC off
	NVRAM	Supports up to 16Mbyte Coin Battery backup to Retain Data for 5 years during AC off Support Battery voltage monitoring & Warning	Supports up to 16Mbyte Coin Battery backup to Retain Data for 5 years during AC off Support Battery voltage monitoring & Warning
	DI/DO	32-bit Digital Input 32-bit OC output (29-bit x 500mA, disconnect detection up to 8 meters; 3-bit x 3A)	32-bit Digital Input 32-bit OC output (29-bit x 500mA, disconnect detection up to 8 meters; 3-bit x 3A)
	iButton	Support iButton 1-wire protocol	Support iButton 1-wire protocol
SECURITY	TPM	TPM 2.0	TPM 2.0
POWER	Type	19~24V DC IN	19~24V DC IN
	Connector	4-pin Terminal or 4P ATX straight PWR conn	4-pin Terminal or 4P ATX straight PWR conn
OS SUPPORT	Microsoft	Windows IoT Enterprise 10 LTSC Windows 11 IoT Enterprise(64-bit)_23H2	Windows IoT Enterprise 10 LTSC Windows 11 IoT Enterprise(64-bit)_23H2
	Linux	Linux Ubuntu 20.04	Linux Ubuntu 20.04
	Software	Supplied with gaming function SDK	Supplied with gaming function SDK
ENVIRONMENT	Operating Temperature	0~45°C	0~45°C
	Storage Temperature	-20~85°C	-20~85°C
	Relative Humidity	5%~90%	5%~90%
MECHANISM	Mounting	Wall Mount	Wall Mount
	Dimensions (W x H x D)	230 x 140 x 240 mm	230 x 140 x 240 mm
	Weight	3.1 kg	3.1 kg
STANDARDS AND CERTIFICATIONS	Shock	Operation: IEC 60068-2-27 Test Ea: Shock test Half-sine, 3G @ 11ms, 18 Shock $\pm X$, $\pm Y$, $\pm Z$ (each axis 3 times) Non-Operation: IEC 60068-2-27 Test Ea: Shock test Half-sine, 5G @ 11ms, 18 Shock $\pm X$, $\pm Y$, $\pm Z$ (each axis 3 times)	Operation: IEC 60068-2-27 Test Ea: Shock test Half-sine, 3G @ 11ms, 18 Shock $\pm X$, $\pm Y$, $\pm Z$ (each axis 3 times) Non-Operation: IEC 60068-2-27 Test Ea: Shock test Half-sine, 5G @ 11ms, 18 Shock $\pm X$, $\pm Y$, $\pm Z$ (each axis 3 times)
	Vibration	Operation: IEC 60068-2-64 Test Fh: Vibration Board-Band Random Test Random,1Grms @ 5~500 Hz, 30min. Non-Operation: IEC 60068-2-6 Test Fc: Vibration Sinusoidal Test Sweep sine, 2Grms @ 10~500Hz, 30min.	Operation: IEC 60068-2-64 Test Fh: Vibration Board-Band Random Test Random,1Grms @ 5~500 Hz, 30min. Non-Operation: IEC 60068-2-6 Test Fc: Vibration Sinusoidal Test Sweep sine, 2Grms @ 10~500Hz, 30min.
	Certifications	CE, FCC class A (ongoing)	CE, FCC class A (ongoing)

OPTIONAL ITEMS

Optional Items	Part Number	Description
MXM Quadro T1000	612-M3T100-100G	50W, 896 CUDA Cores, 2.6 TFLOPS, 0~55°C
MXM Quadro RTX A500	612-M3A500-000G	35W, 2048 CUDA Cores, 6.54 TFLOPS, 0~55°C
MXM Quadro RTX A1000	612-M3A100-000G	60W, 2048 CUDA Cores, 6.66 TFLOPS, 0~55°C
MXM Quadro RTX A2000	612-M3A200-000G	60W, 2560 CUDA Cores, 8.64 TFLOPS, 0~55°C
MXM Quadro RTX3000	612-M3T300-000G	80W, 1920 CUDA Cores, 5.3 TFLOPS, 0~55°C
MXM Quadro RTX A4500	612-M3A450-000G	115W, 5888 CUDA Cores, 17.66 TFLOPS, 0~55°C
MXM Cooler	A71-110100-000G	MXM cooler for RTX3000 87x106.35x34mm
MXM Cooler	TBD	MXM cooler for T1000 73x60x32.1mm