



Product Brief

The AMD Radeon™ E8860 MXM

KEY FEATURES

PCI EXPRESS® MXM GRAPHICS MODULE

- Version 3.0, Type A Form Factor
- Compact design
- Options for fansink, heatpipe, or none

AMD RADEON™ E8860 EMBEDDED GPU

- Discrete GPU with 2GB GDDR5 video memory

EXCEPTIONAL GRAPHICS & VIDEO

- Microsoft® DirectX® 11.1 capable
- 3DMark 11P score of 2689¹
- 4th generation video decoder

AMD APP TECHNOLOGY²

- Supercomputing class performance
- 768 Single precision GFLOPS (peak)³
- OpenCL™ 1.2

AMD EYEFINITY TECHNOLOGY⁴

- Up to five display outputs⁵
- Display Port 1.2 support

HD3D TECHNOLOGY⁶

- Blu-ray 3D, stereo 3D graphics

EXTENDED AVAILABILITY

- 7 year supply⁷
- Dedicated support

The Latest Evolution in MXM Solutions with the AMD Radeon™ E8860 Embedded Discrete Graphics Processor

COMPACT, INDUSTRY-STANDARD FORM FACTOR FOR THE EMBEDDED MARKET

The AMD Radeon™ E8860 MXM Module is a discrete AMD Radeon E8860 GPU integrated with 2GB of high speed GDDR5 memory packaged in an industry-standard form factor MXM module. Available in multiple models with different thermal solutions, the AMD Radeon E8860 MXM Module is ideal for performance-driven systems such as casino gaming, medical imaging, and conventional military/commercial aerospace systems. Multiple display capability makes the AMD Radeon E8860 MXM module an excellent choice for small footprint, compact solutions for digital signage and video wall systems.

NEW GENERATION OF STANDARDS

The AMD Radeon E8860 MXM Module is the first AMD Embedded solution built on the new Graphics Core Next (GCN) architecture which supports the latest generation of graphics and compute standards including DirectX® 11.1, OpenGL 4.2, OpenCL™ 1.2, Display Port 1.2, and PCI Express 3.0⁸ to provide the most up-to-date technology today, helping to ensure a strong solution for tomorrow.

NEW LEVEL OF PERFORMANCE

The AMD Radeon E8860 GPU has twice as much memory as the AMD Radeon E6760 GPU, and delivers 92% higher 3D graphics performance per watt.⁹ Compared to NVIDIA GeForce GPUs of the same power class, the E8860 delivers 22% higher 3D graphics performance and 61% higher performance per watt.¹⁰

Supporting thermal design power (TDP) of 37 watts, the AMD Radeon E8860 MXM Module provides the optimal performance-per-watt profile

for embedded applications that require outstanding multi-display experiences, superior visual quality, and massively parallel computation, while meeting exacting power efficiency and heat dissipation requirements. Low power dissipation provides system cooling flexibility that helps developers conserve valuable board space and improve system ruggedization for harsh environments.

NEW SUPERIOR DISPLAY CAPABILITIES

The AMD Radeon E8860 MXM Module provides multi-display flexibility, supporting up to five 3840x2160 @30Hz displays simultaneously in clone mode and extended desktop in static screen mode. In addition, one display of 4096x2160 @60Hz over

one HDMI™ or DP1.2 interface can be supported, providing a superior viewing experience. AMD Eyefinity technology, supported by the AMD Radeon E8860 MMX Module, renders a single high-resolution picture across multiple displays. This flexible, one-to-many system-to-display capability enables ultra-immersive visual experiences in a single small form factor system.

NEW VIDEO PLAYBACK CAPABILITIES

Integrating AMD's 4th generation video decoder, the AMD Radeon E8860 MXM Module features full dual HD video stream decode for content in H.264/AVCHD, VC-1/WMV, MPEG-2, MVC, and MPEG-4/DivX formats.¹¹

PRODUCT SPECIFICATIONS

Mobile PCI Express® MXM Graphic Module Version 3.0, Type A

MODULE DIMENSIONS L X W X H (MM, NOMINAL)

No thermal solution – 70 x 82 x 7 mm
Fansink – 97 x 82 x 22 mm
Heatpipe – 95 x 82 x 40 mm

THERMAL DESIGN POWER (TDP)

37W

AMD Radeon™ E8860 Graphics Processing Unit

PROCESS TECHNOLOGY

28 nm

GRAPHICS ENGINE / MEMORY CLOCK

625 MHz Engine/1125 MHz Memory

MEMORY

128-bit, 2 GB GDDR5, 72 GB/s

HOST INTERFACE

PCI Express® Version 3.0

GRAPHICS

- 10 CU (640 shaders)
- 3DMark® 11P score of 2689
- DirectX® 11.1, Shader Model 5.0, OpenGL 4.2

VIDEO

- 4th Generation Video Decoder
- H.264, VC-1, MPEG-2, MVC, MPEG-4/DivX decode
- Blu-ray 3D & stereo 3D graphics with AMD HD3D technology

COMPUTE

- 768 GFLOPS/s single precision floating point (peak)
- AMD APP technology, OpenCL™ 1.2, DirectCompute¹¹

DISPLAY

Up to 5 displays with AMD Eyefinity multidisplay technology

AUDIO

Integrated HD audio controller (Azalia) & Codec

Display Interfaces (max resolution)

ANALOG VGA

1x Triple 10-bit RGB DAC, 400 MHz, (2048 x 1536)

SINGLE / DUAL-LINK DVI RESOLUTION (W HDCP)

2x single-link DVI, (1600 x 1200) / 2x dual-link DVI, (2560 x 1600), 162 MPixels/s per link

DISPLAYPORT

5x DisplayPort 1.2, (3840 x 2400)

SINGLE / DUAL-LINK LVDS

1x single-link, (1280 x 1024) / 1x dual-link, (2048x1536)

HDMI™

1x HDMI™ 1.4a, (1920 x 1080p), 148.5 MHz pixel clock

Software Support

Windows® XP / Windows XP Embedded ¹²	YES
Windows 7 / Windows 8/8.1	YES
Linux® (x86)	YES

www.amd.com/embedded

1. AMD Radeon™ E8860 scored 2689 when running 3DMark® 11P benchmark paired with the AMD R-464L APU. Performance was measured using an AMD DB-F51r2 motherboard with 8GB DDR3 memory, 64GB Crucial M4 HDD, and the AMD R-464L APU. The system ran Windows® 7 Ultimate. EMB-107
2. AMD APP technology is a set of technologies designed to improve video quality and enhance application performance. Full enablement of some features requires support for OpenCL™ or DirectCompute (including AMD's Unified Video Decoder (UVD)). Not all products have all features and full enablement of some capabilities and some may require complementary products.
3. The E8860 Embedded Discrete Graphics Processor (with 10 CUs) provides a peak theoretical performance of 768 billion single precision floating point operations per second (768 GFLOPS/sec). Peak performance was calculated using the formula Peak SP GFLOPS = { [GPU engine clock (in MHz)] * # of CUs * 64 * 2 } / 1000. Using the GPU engine clock rate of 600 MHz results in a peak performance of 768 SP GFLOPS/sec. EMB-106
4. AMD Eyefinity technology supports up to six DisplayPort monitors on an enabled graphics card. Supported display quantity, type, and resolution vary by model and board design; confirm specifications with manufacturer before purchase. To enable more than two displays, or multiple displays from a single output, additional hardware such as DisplayPort-ready monitors or DisplayPort 1.2 MST-enabled hubs may be required. A maximum of two active adapters is supported. See www.amd.com/eyefinityfaq for full details.
5. Standard embedded AMD Radeon™ E8860 SKUs support up to five displays. For six-display configuration information and support, contact your local AMD sales representative.
6. AMD HD3D is a technology designed to enable stereoscopic 3D support in games, movies and/or photos. Additional hardware (e.g. 3D enabled panels, 3D-enabled glasses/emitter, Blu-ray 3D drive) and/or software (e.g. Blu-ray 3D discs, 3D middleware, games) are required for the enablement of stereoscopic 3D. Not all features may be supported on all components or systems - check with your component or system manufacturer for specific model capabilities and supported technologies. A list of supported stereoscopic 3D hardware is available at http://www.amd.com/HD3D.
7. Part availability is planned for seven years from date of announcement, subject to change without notice. Further support available under contract.
8. Utilization of PCI Express 3.0 bandwidth requires a mainboard equipped with a PCI Express 3.0 PHY. Not all mainboards feature this technology - check with your component or system manufacturer for specific model capabilities.
9. AMD Radeon™ E8860 scored 2689 and AMD Radeon E6760 scored 1327 when running 3DMark® 11P benchmark paired with AMD R-464L APU. The performance-per-watt data was calculated by dividing the 3DMark 11P score by the GPU's thermal design power. The performance-per-watt delta was calculated based on the E8860 GPU's performance-per-watt score of 72.7 and the E6760 APU's performance-per-watt score of 37.9. The E8860 and E6760 used an AMD DB-F51r2 motherboard with 8GB DDR3 memory, a 64GB Crucial M4 hard disk drive, and AMD R-464L. The system ran Windows® 7 Ultimate. EMB-81
10. AMD Radeon™ E8860 scored 2689, AMD Radeon E6760 scored 1327, NVIDIA GeForce GT630 (Kepler) scored 1784, and NVIDIA GeForce GT640 (GDDR5) scored 2209 when running 3DMark® 11P benchmark paired with the AMD R-464L. The performance-per-watt data was calculated by dividing the 3DMark 11P score by the GPU's thermal design power. The performance delta was calculated based on the E8860 GPU's 3DMark11 score of 2689 and the GeForce GT640 (GDDR5)'s 3DMark11 score of 2209. The performance-per-watt delta was calculated based on the E8860 GPU's performance-per-watt score of 72.7 and the GeForce GT640 (GDDR5)'s performance-per-watt score of 45.1. AMD Radeon E8860, AMD Radeon E6760, NVIDIA GeForce GT630 (Kepler), and NVIDIA GeForce GT640 (GDDR5) used an AMD DB-F51r2 motherboard with 8GB DDR3 memory, a 64GB Crucial M4 hard disk drive, and AMD R-464L APU. The system ran Windows® 7 Ultimate. EMB-82
11. AMD does not provide a license/sublicense to any intellectual property rights relating to any to any standards, including but not limited to any audio and/or video codec technologies such as AVC/H.264/MPEG-4, AVC, VC-1, MPEG-2, and DivX/xViD.
12. Windows XP Embedded driver provided by third party.

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