

# AMD Radeon™ HD 8000M Series GPU Specifications

## AMD Radeon™ HD 8870M Series GPU Feature Summary

- Up to 725 MHz engine clock (up to 775 MHz with boost)
- Up to 2GB GDDR5 memory and 2GB DDR3 Memory
- Up to 1.125 GHz memory clock (4.5 Gbps) or Up to 1Ghz DDR3 (2.0 Gbps) Memory clock
- 72 GB/s memory bandwidth
- 992 GFLOPS peak Single Precision compute throughput
- 62 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 10 Compute Units (640 Stream Processors)
  - 40 Texture Units
  - 64 Z/Stencil ROP Units
  - 16 Color ROP Units
  - 512KB L2 read/write cache
- 128-bit GDDR5 memory interface
- PCI Express 3.0 x16 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA)
    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 6 displays supported with DisplayPort 1.2 Multi-Stream Transport
  - Independent resolutions, refresh rates, color controls, and video overlays
  - Display grouping
    - Combine multiple displays to behave like a single large display
  - Discrete Digital Multipoint (DDM) Audio
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
  - AMD HD Media Accelerator
    - Unified Video Decoder (UVD)
      - H.264
      - VC-1
      - MPEG-2 (SD & HD)
      - MVC (Blu-ray 3D)
      - MPEG-4 Part 2 (DivX/Xvid)
      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Video Codec Engine (VCE)
      - Multi-stream hardware H.264 encoder
      - Full-fixed mode (1080p @ 60 FPS encoding)

- Hybrid mode (Stream Processor-assisted encoding)
  - Enhanced Video Quality features
    - Advanced post-processing and scaling
    - Deblocking
    - Denoising
    - Automatic deinterlacing
    - Mosquito noise reduction
    - Edge enhancement
    - 3:2 pulldown detection
  - Advanced video color correction
    - Brighter whites processing (Blue Stretch)
    - Independent video gamma control
    - Flesh tone correction
    - Color vibrance control
    - Dynamic contrast
    - Dynamic video range control
- AMD HD3D technology<sup>6</sup>
  - Stereoscopic 3D display/glasses support
  - Blu-ray 3D support
  - Stereoscopic 3D gaming
  - 3<sup>rd</sup> party Stereoscopic 3D middleware software support
- AMD CrossFire™ multi-GPU technology<sup>7</sup>
  - Supports dual GPU performance scaling
- Cutting-edge integrated display support
  - DisplayPort 1.2
    - Max resolution: 4096x2160 per display
    - HBR2 support
    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
    - High bit-rate audio
    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
    - 1080p60 Stereoscopic 3D
    - Quad FullHD/4k video support
  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP
  - AMD Catalyst™ Control Center

- User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products
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## AMD Radeon™ HD 8850M Series GPU Feature Summary

- Up to 575-725 MHz engine clock (up to 625-775 MHz with boost)
- Up to 2GB GDDR5 memory and 2GB DDR3 Memory
- Up to 1.125 GHz GDDR5 (4.5 Gbps) or 1 GHz DDR3 (2 Gbps) memory clock
- 32-72 GB/s memory bandwidth
- 800-992 GFLOPS peak Single Precision compute throughput
- 50-62 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 10 Compute Units (640 Stream Processors)
  - 40 Texture Units
  - 64 Z/Stencil ROP Units
  - 16 Color ROP Units
  - 512KB L2 read/write cache
- 128-bit GDDR5/DDR3 memory interface
- PCI Express 3.0 x16 bus interface<sup>1</sup>
- DirectX® 11.1-capable graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA)
    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 6 displays supported with DisplayPort 1.2 Multi-Stream Transport
  - Independent resolutions, refresh rates, color controls, and video overlays
  - Display grouping
    - Combine multiple displays to behave like a single large display
  - Discrete Digital Multipoint (DDM) Audio
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
  - AMD HD Media Accelerator
    - Unified Video Decoder (UVD)
      - H.264
      - VC-1
      - MPEG-2 (SD & HD)
      - MVC (Blu-ray 3D)
      - MPEG-4 Part 2 (DivX/Xvid)
      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Video Codec Engine (VCE)
      - Multi-stream hardware H.264 encoder

- Full-fixed mode (1080p @ 60 FPS encoding)
    - Hybrid mode (Stream Processor-assisted encoding)
  - Enhanced Video Quality features
    - Advanced post-processing and scaling
    - Deblocking
    - Denoising
    - Automatic deinterlacing
    - Mosquito noise reduction
    - Edge enhancement
    - 3:2 pulldown detection
  - Advanced video color correction
    - Brighter whites processing (Blue Stretch)
    - Independent video gamma control
    - Flesh tone correction
    - Color vibrance control
    - Dynamic contrast
    - Dynamic video range control
- AMD HD3D technology<sup>6</sup>
  - Stereoscopic 3D display/glasses support
  - Blu-ray 3D support
  - Stereoscopic 3D gaming
  - 3<sup>rd</sup> party Stereoscopic 3D middleware software support
- AMD CrossFire™ multi-GPU technology<sup>7</sup>
  - Supports dual GPU performance scaling
- Cutting-edge integrated display support
  - DisplayPort 1.2
    - Max resolution: 4096x2160 per display
    - HBR2 support
    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
    - High bit-rate audio
    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
    - 1080p60 Stereoscopic 3D
    - Quad FullHD/4k video support
  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP

- AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products
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## **AMD Radeon™ HD 8830M Series GPU Feature Summary**

- Up to 575 MHz engine clock (up to 625 MHz with boost)
- Up to 2GB DDR3 memory
- Up to 1 GHz memory clock (2 Gbps)
- 32 GB/s memory bandwidth
- 800 GFLOPS peak Single Precision compute throughput
- 50 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 10 Compute Units (640 Stream Processors)
  - 40 Texture Units
  - 64 Z/Stencil ROP Units
  - 16 Color ROP Units
  - 512KB L2 read/write cache
- 128-bit GDDR5/DDR3 memory interface
- PCI Express 3.0 x16 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA)
    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 6 displays supported with DisplayPort 1.2 Multi-Stream Transport
  - Independent resolutions, refresh rates, color controls, and video overlays
  - Display grouping
    - Combine multiple displays to behave like a single large display
  - Discrete Digital Multipoint (DDM) Audio
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
  - AMD HD Media Accelerator
    - Unified Video Decoder (UVD)
      - H.264
      - VC-1
      - MPEG-2 (SD & HD)
      - MVC (Blu-ray 3D)
      - MPEG-4 Part 2 (DivX/Xvid)
      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Video Codec Engine (VCE)
      - Multi-stream hardware H.264 encoder

- Full-fixed mode (1080p @ 60 FPS encoding)
    - Hybrid mode (Stream Processor-assisted encoding)
  - Enhanced Video Quality features
    - Advanced post-processing and scaling
    - Deblocking
    - Denoising
    - Automatic deinterlacing
    - Mosquito noise reduction
    - Edge enhancement
    - 3:2 pulldown detection
  - Advanced video color correction
    - Brighter whites processing (Blue Stretch)
    - Independent video gamma control
    - Flesh tone correction
    - Color vibrance control
    - Dynamic contrast
    - Dynamic video range control
- AMD HD3D technology<sup>6</sup>
  - Stereoscopic 3D display/glasses support
  - Blu-ray 3D support
  - Stereoscopic 3D gaming
  - 3<sup>rd</sup> party Stereoscopic 3D middleware software support
- AMD CrossFire™ multi-GPU technology<sup>7</sup>
  - Supports dual GPU performance scaling
- Cutting-edge integrated display support
  - DisplayPort 1.2
    - Max resolution: 4096x2160 per display
    - HBR2 support
    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
    - High bit-rate audio
    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
    - 1080p60 Stereoscopic 3D
    - Quad FullHD/4k video support
  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP

- AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products
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## **AMD Radeon™ HD 8790M Series GPU Feature Summary**

- Up to 850 MHz engine clock (up to 900 MHz with boost)
- Up to 2GB GDDR5 memory
- Up to 1.125 GHz memory clock (4.5 Gbps)
- 72 GB/s memory bandwidth
- 691 GFLOPS peak Single Precision compute throughput
- 43 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 6 Compute Units (384 Stream Processors)
  - 24 Texture Units
  - 32 Z/Stencil ROP Units
  - 8 Color ROP Units
  - 256KB L2 read/write cache
- 128-bit GDDR5 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA)
    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 2 displays supported
  - Independent resolutions, refresh rates, color controls, and video overlays
  - Display grouping
    - Combine multiple displays to behave like a single large display
  - Discrete Digital Multipoint (DDM) Audio
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
  - AMD HD Media Accelerator
    - Unified Video Decoder (UVD)
      - H.264
      - VC-1
      - MPEG-2 (SD & HD)
      - MVC (Blu-ray 3D)
      - MPEG-4 Part 2 (DivX/Xvid)
      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Enhanced Video Quality features
      - Advanced post-processing and scaling
      - Deblocking

- Denoising
    - Automatic deinterlacing
    - Mosquito noise reduction
    - Edge enhancement
    - 3:2 pulldown detection
  - Advanced video color correction
    - Brighter whites processing (Blue Stretch)
    - Independent video gamma control
    - Flesh tone correction
    - Color vibrance control
    - Dynamic contrast
    - Dynamic video range control
- AMD HD3D technology<sup>6</sup>
  - Stereoscopic 3D display/glasses support
  - Blu-ray 3D support
  - Stereoscopic 3D gaming
  - 3<sup>rd</sup> party Stereoscopic 3D middleware software support
- AMD CrossFire™ multi-GPU technology<sup>7</sup>
  - Supports dual GPU performance scaling
- Cutting-edge integrated display support
  - DisplayPort 1.2
    - Max resolution: 4096x2160 per display
    - HBR2 support
    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
    - High bit-rate audio
    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
    - 1080p60 Stereoscopic 3D
    - Quad FullHD/4k video support
  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver



- Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products
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### **AMD Radeon™ HD 8770M Series GPU Feature Summary**

- Up to 775 MHz engine clock (up to 825MHz with boost)
- Up to 2GB GDDR5 or DDR3 memory
- Up to 1.125 GHz (4.5 Gbps) GDDR5
- 72 GB/s memory bandwidth
- 633-691 GFLOPS peak Single Precision compute throughput
- 39-42 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 6 Compute Units (384 Stream Processors)
  - 24 Texture Units
  - 32 Z/Stencil ROP Units
  - 8 Color ROP Units
  - 256KB L2 read/write cache
- 128-bit GDDR5 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
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    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 2 displays supported
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      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Enhanced Video Quality features
      - Advanced post-processing and scaling
      - Deblocking
      - Denoising
      - Automatic deinterlacing

- Mosquito noise reduction
    - Edge enhancement
    - 3:2 pulldown detection
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## AMD Radeon™ HD 8750M Series GPU Feature Summary

- Up to 620-775 MHz engine clock (up to 670-825 MHz with boost)
- Up to 2GB GDDR5 or DDR3 memory
- Up to 1 GHz (4.0 Gbps) GDDR5 or 1000 MHz (2.0 Gbps) DDR3 memory clock
- 28.8-64 GB/s memory bandwidth
- 537-633 GFLOPS peak Single Precision compute throughput
- 33-39 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 6 Compute Units (384 Stream Processors)
  - 24 Texture Units
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- Cutting-edge integrated display support
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    - Max resolution: 4096x2160 per display
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    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
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    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
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  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
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- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products

## AMD Radeon™ HD 8730M Series GPU Feature Summary

- Up to 650 MHz engine clock (up to 700 MHz with boost)
- Up to 2GB DDR3 memory
- Up to 1 GHz memory clock (2.0 Gbps)
- 32 GB/s memory bandwidth
- 537 GFLOPS peak Single Precision compute throughput
- 33 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 6 Compute Units (384 Stream Processors)
  - 24 Texture Units
  - 32 Z/Stencil ROP Units
  - 8 Color ROP Units
  - 256KB L2 read/write cache
- 128-bit DDR3 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA)
    - Automatic LOD adjustment (Requires AMD Catalyst™ 12.4 or higher)
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD Eyefinity multi-display technology<sup>5</sup>
  - Up to 2 displays supported
  - Independent resolutions, refresh rates, color controls, and video overlays
  - Display grouping
    - Combine multiple displays to behave like a single large display
  - Discrete Digital Multipoint (DDM) Audio
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
  - AMD HD Media Accelerator
    - Unified Video Decoder (UVD)
      - H.264
      - VC-1
      - MPEG-2 (SD & HD)
      - MVC (Blu-ray 3D)
      - MPEG-4 Part 2 (DivX/Xvid)
      - Adobe Flash
      - DXVA 1.0 & 2.0
    - Enhanced Video Quality features
      - Advanced post-processing and scaling
      - Deblocking
      - Denoising
      - Automatic deinterlacing
      - Mosquito noise reduction
      - Edge enhancement
      - 3:2 pulldown detection
    - Advanced video color correction

- Brighter whites processing (Blue Stretch)
  - Independent video gamma control
  - Flesh tone correction
  - Color vibrance control
  - Dynamic contrast
  - Dynamic video range control
- AMD HD3D technology<sup>6</sup>
  - Stereoscopic 3D display/glasses support
  - Blu-ray 3D support
  - Stereoscopic 3D gaming
  - 3<sup>rd</sup> party Stereoscopic 3D middleware software support
- AMD CrossFire™ multi-GPU technology<sup>7</sup>
  - Supports dual GPU performance scaling
- Cutting-edge integrated display support
  - DisplayPort 1.2
    - Max resolution: 4096x2160 per display
    - HBR2 support
    - Multi-Stream Transport
    - 21.6 Gbps bandwidth
    - High bit-rate audio
    - Quad FullHD/4k video support
  - HDMI® (With 4K, 3D, x.v.Color™ and Deep Color)
    - Max resolution: 4096x2160
    - 1080p60 Stereoscopic 3D
    - Quad FullHD/4k video support
  - Dual-link DVI with HDCP
    - Max resolution: 2560x1600
  - VGA
    - Max resolution: 2048x1536
- Integrated HD audio controller
  - Output protected high bit rate 7.1 channel surround sound over HDMI and DisplayPort with no additional cables required
  - Supports LPCM, AC-3, AAC, Dolby TrueHD and DTS Master Audio formats
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
  - Ultra-low power state support for multi-GPU configurations
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Windows XP
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver

Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products

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## AMD Radeon™ HD 8690M Series GPU Feature Summary

- Up to 775 -900 MHz engine clock (up to 825- 975 MHz with boost)
- Up to 2GB GDDR5 memory
- Up to 1125 MHz memory clock (4.5 Gbps)
- Up to 36 GB/s memory bandwidth
- Up to 624- 633 GFLOPS peak Single Precision compute throughput
- 39 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 5 Compute Units (320 Stream Processors)
  - 20 Texture Units
  - 16 Z/Stencil ROP Units
  - 4 Color ROP Units
  - 256KB L2 read/write cache
- Shader Model 5.0
- 64-bit GDDR5 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA) with automatic LOD adjustment
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Linux
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, and features of AMD Radeon™ products

## AMD Radeon™ HD 8670M Series GPU Feature Summary

- Up to 775-900 MHz engine clock (up to 825-975 MHz with boost)
- Up to 2GB DDR3 memory

- Up to 1.0 GHz memory clock (2.0 Gbps)
- Up to 14.4 – 16GB GB/s memory bandwidth
- Up to 624-633 GFLOPS peak Single Precision compute throughput
- 39 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>
  - 9<sup>th</sup> generation programmable hardware tessellation unit
  - 5 Compute Units (320 Stream Processors)
  - 20 Texture Units
  - 16 Z/Stencil ROP Units
  - 4 Color ROP Units
  - 256KB L2 read/write cache
- Shader Model 5.0
- 64-bit DDR3 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA) with automatic LOD adjustment
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Linux
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, and features of AMD Radeon™ products

### **AMD Radeon™ HD 8590M Series GPU Feature Summary**

- Up to 620 – 750 MHz engine clock (up to 670-825 MHz with boost)
- Up to 2GB GDDR5 memory
- Up to 1.125 GHz memory clock (4.5 Gbps)
- Up to 36 GB/s memory bandwidth
- Up to 528-537 GFLOPS peak Single Precision compute throughput
- 33 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>



- 9<sup>th</sup> generation programmable hardware tessellation unit
  - 5 Compute Units (320 Stream Processors)
  - 20 Texture Units
  - 16 Z/Stencil ROP Units
  - 4 Color ROP Units
  - 256KB L2 read/write cache
- Shader Model 5.0
- 64-bit GDDR5 memory interface
- PCI Express 3.0 x8 bus interface<sup>1</sup>
- DirectX® 11.1 graphics
- OpenGL 4.3 support
- Partially Resident Texture (PRT) support
  - Ultra-high quality texture streaming technology
- Image quality enhancement technology
  - Up to 24x multi-sample anti-aliasing
  - Adaptive anti-aliasing
  - Enhanced Quality Anti-Aliasing (EQAA)
  - Morphological Anti-Aliasing (MLAA 2)
  - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA) with automatic LOD adjustment
  - 16x angle invariant anisotropic texture filtering
  - 128-bit floating point HDR rendering
- AMD App Acceleration<sup>2</sup>
  - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
  - Double Precision Floating Point processing
- AMD PowerPlay™ power management technology<sup>3</sup>
  - Automatic power management with low power idle states
- AMD PowerTune technology<sup>3</sup>
  - Intelligent TDP management technology
  - Dynamic clock speed/performance enhancement for games
  - Platform-level power management
- AMD ZeroCore Power technology<sup>3</sup>
  - <1W idle for GPUs with inactive displays
- AMD Enduro™ technology<sup>4</sup>
  - Seamlessly powers down GPU when not required, and powers up GPU when you need it
  - Power state-based control (AC vs. DC power)
- AMD Catalyst™ graphics and HD video configuration software
  - Software support for Windows 8, Windows 7, Windows Vista, and Linux
  - AMD Catalyst™ Control Center
    - User interface application for setup, configuration, and access to features of AMD Radeon products
  - Unified graphics display driver
    - Software enabling other PC programs and devices to use advanced graphics, video, and features of AMD Radeon™ products

### **AMD Radeon™ HD 8570M Series GPU Feature Summary**

- Up to 650 – 750 MHz engine clock (up to 700-825 MHz with boost)
- Up to 2GB DDR3 memory
- Up to 1.0 GHz memory clock (2.0 Gbps)
- Up to 14.4 - 16 GB/s memory bandwidth
- Up to 528-537 GFLOPS peak Single Precision compute throughput
- 33 GFLOPS peak Double Precision compute throughput
- GCN Architecture<sup>1</sup>

- 9<sup>th</sup> generation programmable hardware tessellation unit
    - 5 Compute Units (320 Stream Processors)
    - 20 Texture Units
    - 16 Z/Stencil ROP Units
    - 4 Color ROP Units
    - 256KB L2 read/write cache
  - Shader Model 5.0
  - 64-bit DDR3 memory interface
  - PCI Express 3.0 x8 bus interface<sup>1</sup>
  - DirectX® 11.1 graphics
  - OpenGL 4.3 support
  - Partially Resident Texture (PRT) support
    - Ultra-high quality texture streaming technology
  - Image quality enhancement technology
    - Up to 24x multi-sample anti-aliasing
    - Adaptive anti-aliasing
    - Enhanced Quality Anti-Aliasing (EQAA)
    - Morphological Anti-Aliasing (MLAA 2)
    - DirectX® 9/10/11 Super Sample Anti-Aliasing (SSAA) with automatic LOD adjustment
    - 16x angle invariant anisotropic texture filtering
    - 128-bit floating point HDR rendering
  - AMD App Acceleration<sup>2</sup>
    - OpenCL 1.2, DirectCompute 11.1, and Microsoft C++ AMP support
    - Double Precision Floating Point processing
  - AMD PowerPlay™ power management technology<sup>3</sup>
    - Automatic power management with low power idle states
  - AMD PowerTune technology<sup>3</sup>
    - Intelligent TDP management technology
    - Dynamic clock speed/performance enhancement for games
    - Platform-level power management
  - AMD ZeroCore Power technology<sup>3</sup>
    - <1W idle for GPUs with inactive displays
  - AMD Enduro™ technology<sup>4</sup>
    - Seamlessly powers down GPU when not required, and powers up GPU when you need it
    - Power state-based control (AC vs. DC power)
  - AMD Catalyst™ graphics and HD video configuration software
    - Software support for Windows 8, Windows 7, Windows Vista, and Linux
    - AMD Catalyst™ Control Center
      - User interface application for setup, configuration, and access to features of AMD Radeon products
    - Unified graphics display driver
      - Software enabling other PC programs and devices to use advanced graphics, and features of AMD Radeon™ products
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## Footnotes:

Additional hardware (e.g. Blu-ray drive, HD or 10-bit monitor, TV tuner) and/or software (e.g. multimedia applications) are required for the full enablement of some features. 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.

1. The GCN Architecture and its associated features (PCI Express® 3.0, AMD Enduro™, AMD ZeroCore Power technology, ACP Audio, etc.) are applicable to select AMD Radeon™ HD 7000M and HD 8000M Series Graphics. Not all technologies are supported in all system configurations—check with your system manufacturer for specific model capabilities.
2. AMD App Acceleration 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 Universal Video Decoder (UVD)). Not all products have all features and full enablement of some capabilities and may require complementary products.
3. AMD PowerTune, AMD's Power Gating support, AMD ZeroCore Power and other AMD power management technologies are a family of technologies offered with certain AMD Radeon™ graphics products, which are designed to intelligently manage GPU power consumption in response to certain GPU load conditions. Not all products feature all technologies—check with your component or system manufacturer for specific model capabilities
4. AMD Enduro™ technology, AMD Enduro™ technology automatically turns off the AMD Radeon™ discrete GPU for non-intensive applications to help maximize battery life for more time unplugged, and requires either an AMD A-Series APU or an Intel processor, plus an AMD Radeon™ discrete graphics card and is available on Windows® 7 and Windows® 8 Standard and Professional editions. Linux OS supports manual switching which requires restart of X-Server to switch between graphics solutions. With AMD Enduro™ technology, full enablement of all discrete graphics video and display features may not be supported on all systems (e.g. OpenGL applications will run on the integrated GPU or the APU as the case may be). Always check with your system manufacturer for specific mode capabilities and supported technologies.
5. AMD Eyefinity technology works with games that support non-standard aspect ratios, which is required for panning across multiple displays. To enable more than two displays, additional panels with native DisplayPort™ connectors are required. Limit two active adapters. Support for six simultaneous displays may require complementary products compatible with DisplayPort 1.2 Multi-Stream Transport. Maximum number of configured displays may vary - check with your component or system manufacturer for specific model capabilities and supported technologies.
6. AMD HD3D is a technology designed to enable stereoscopic 3D support in games, movies and/or photos. Requires 3D stereo drivers, glasses, and display. 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. AMD CrossFire™ technology requires an AMD CrossFire Ready motherboard, an AMD CrossFire™ Bridge Interconnect (for each additional graphics card) and may require a specialized power supply.