

ATI Radeon™ HD 4800 Series - GPU Specifications

- 956 million transistors on 55nm fabrication process
- PCI Express 2.0 x16 bus interface
- 256-bit GDDR3/4/5 memory interface
- Microsoft® DirectX® 10.1 support
 - Shader Model 4.1
 - 32-bit floating point texture filtering
 - Indexed cube map arrays
 - Independent blend modes per render target
 - Pixel coverage sample masking
 - Read/write multi-sample surfaces with shaders
 - Gather4 texture fetching
- Unified Superscalar Shader Architecture
 - 800 stream processing units
 - Dynamic load balancing and resource allocation for vertex, geometry, and pixel shaders
 - Common instruction set and texture unit access supported for all types of shaders
 - Dedicated branch execution units and texture address processors
 - 128-bit floating point precision for all operations
 - Command processor for reduced CPU overhead
 - Shader instruction and constant caches
 - Up to 160 texture fetches per clock cycle
 - Up to 128 textures per pixel
 - Fully associative multi-level texture cache design
 - DXTC and 3Dc+ texture compression
 - High resolution texture support (up to 8192 x 8192)
 - Fully associative texture Z/stencil cache designs
 - Double-sided hierarchical Z/stencil buffer
 - Re-Z, and Z Range optimization
 - Lossless Z & stencil compression (up to 128:1)
 - Lossless color compression (up to 8:1)
 - Up to 8 render targets (MRTs) with anti-aliasing
 - Accelerated physics processing
- Dynamic Geometry Acceleration
 - High performance vertex cache
 - Programmable tessellation unit
 - Accelerated geometry shader path for geometry amplification
 - Memory read/write cache for improved stream output performance
- Anti-aliasing features
 - Multi-sample anti-aliasing (2, 4, or 8 samples per pixel)
 - Up to 24x Custom Filter Anti-Aliasing (CFAA) for improved quality
 - Adaptive super-sampling and multi-sampling
 - Gamma correct
 - Super AA (ATI CrossFireX™ configurations only)
 - All anti-aliasing features compatible with HDR rendering
- Texture filtering features
 - 2x/4x/8x/16x high quality adaptive anisotropic filtering modes (up to 128 taps per pixel)
 - 128-bit floating point HDR texture filtering
 - sRGB filtering (gamma/degamma)
 - Percentage Closer Filtering (PCF)
 - Depth & stencil texture (DST) format support
 - Shared exponent HDR (RGBE 9:9:9:5) texture format support
- OpenGL 2.1 support
- ATI Avivo™ HD Video and Display Platform⁶
 - Unified Video Decoder 2 (UVD 2) for H.264/AVC, VC-1, and MPEG-2 video formats
 - High definition (HD) playback of Blu-ray and HD DVD video
 - Dual stream (HD+SD) playback support
 - DirectX Video Acceleration 1.0 & 2.0 support
 - Support for BD-Live certified applications
 - Hardware DivX and MPEG-1 video decode acceleration
 - Accelerated video transcoding & encoding for H.264 and MPEG-2 formats
 - ATI Avivo Video Post Processor⁶
 - Color space conversion
 - Chroma subsampling format conversion
 - Horizontal and vertical scaling
 - Gamma correction
 - Advanced vector adaptive per-pixel de-interlacing
 - De-blocking and noise reduction filtering

- Detail enhancement
- Color vibrance and flesh tone correction
- Inverse telecine (2:2 and 3:2 pull-down correction)
- Bad edit correction
- Enhanced DVD upscaling (SD to HD)
- Automatic dynamic contrast adjustment
- Two independent display controllers
 - Drive two displays simultaneously with independent resolutions, refresh rates, color controls and video overlays for each display
 - Full 30-bit display processing
 - Programmable piecewise linear gamma correction, color correction, and color space conversion
 - Spatial/temporal dithering provides 30-bit color quality on 24-bit and 18-bit displays
 - High quality pre- and post-scaling engines, with underscan support for all display outputs
 - Content-adaptive de-flicker filtering for interlaced displays
 - Fast, glitch-free mode switching
 - Hardware cursor
- Two integrated dual-link DVI display outputs
 - Each supports 18-, 24-, and 30-bit digital displays at all resolutions up to 1920x1200 (single-link DVI) or 2560x1600 (dual-link DVI)²
 - Each includes a dual-link HDCP encoder with on-chip key storage for high resolution playback of protected content³
- Two integrated 400 MHz 30-bit RAMDACs
 - Each supports analog displays connected by VGA at all resolutions up to 2048x1536²
- DisplayPort output support
 - 24- and 30-bit displays at all resolutions up to 2560x1600²
- HDMI output support
 - All display resolutions up to 1920x1080²
 - Integrated HD audio controller with support for stereo and multi-channel (up to 7.1) audio formats, including AC-3, AAC, DTS, DTS-HD & Dolby True-HD⁴, enabling a plug-and-play audio solution over HDMI
- Integrated AMD Xilleon™ HDTV encoder
 - Provides high quality analog TV output (component/S-video/composite)
 - Supports SDTV and HDTV resolutions
 - Underscan and overscan compensation
- Seamless integration of pixel shaders with video in real time
- VGA mode support on all display outputs
- ATI PowerPlay™ Technology⁵
 - Advanced power management technology for optimal performance and power savings
 - Performance-on-Demand
 - Constantly monitors GPU activity, dynamically adjusting clocks and voltage based on user scenario
 - Clock and memory speed throttling
 - Voltage switching
 - Dynamic clock gating
 - Central thermal management – on-chip sensor monitors GPU temperature and triggers thermal actions as required
- ATI CrossFireX™ Multi-GPU Technology
 - Scale up rendering performance and image quality with two, three, or four GPUs
 - Integrated compositing engine
 - High performance dual channel bridge interconnect¹

1 Dual channel interconnect is not required for CrossFireX, and may not be included in all product configurations

2 Some custom resolutions require user configuration

3 Playing HDCP content requires additional HDCP ready components, including but not limited to an HDCP ready monitor, Blu-ray or HD DVD disc drive, multimedia application and computer operating system.

4 Subject to digital rights management limitations; maximum supported audio stream bandwidth is 6.144 Mbps

5 ATI PowerPlay™ technology consists of numerous power saving features. Not all features may be available in all ATI Radeon HD 4800 Series graphics cards.

6 ATI Avivo™ HD is a technology platform that includes a broad set of capabilities offered by certain ATI Radeon™ HD GPUs. Not all products have all features and full enablement of some ATI Avivo™ HD capabilities may require complementary products.

ATI Radeon™ HD graphics chips have numerous features integrated into the processor itself (e.g., HDCP, HDMI, etc.). Third parties manufacturing products based on, or incorporating ATI Radeon HD graphics chips, may choose to enable some or all of these features. If a particular feature is important to you, please inquire of the manufacturer if a particular product supports this feature. In addition, some features or technologies may

require you to purchase additional components in order to make full use of them (e.g. a Blu-Ray or HD-DVD drive, HDCP-ready monitor, etc.).