ATI Radeon™ Graphics Quick Reference Guide

Key Selling Points

Segment	Elevator Pitch	Features	Benefits
HD Gaming	Redefine HD Gaming with ATI Radeon™ HD 4800 Series GPUs. Get incredible performance from cutting-edge technologies and massive compute power. Scale your performance even more with ATI CrossFireX™ Technology or ATI Hybrid Graphics.[7]	True DirectX® 10.1 support	DirectX®10.1 enables more game dynamics, details and special effects than ever before for a truly immersive HD gaming experience.[3]
		GDDR5 memory support	The latest in high-performance memory technology, GDDR5 is available on select ATI Radeon™ HD graphics cards.
		ATI CrossFireX™ performance scaling available in all GPUs	Upgrade 3D performance quickly and easily with up to quad-GPU support.[9]
		ATI Hybrid Graphics technology	Improve gaming performance when combining an ATI Radeon™ HD 3400 Series GPU with a compatible AMD 7-Series Integrated Chipset.
HD Video	Go Beyond HD Video with ATI Radeon™ HD 4000 Series and ATI Radeon™ HD 3000 Series GPUs featuring ATI Avivo™ HD technology. Enjoy smooth and True HD 1080p video thanks to full hardware video decoding from the Unified Video Decoder (UVD).[1]	ATI Avivo HD video and display architecture.[1]	ATI Radeon HD GPUs offer an easy and affordable way to turn your PC into an entertainment power-house.
		UVD and UVD 2 for Full-HD 1080p hardware video decode.[3]	Get smooth Blu-ray (including PiP capabilities) and HD video playback while utilizing the CPU for other tasks.[3,8]
		Built-in DisplayPort™ connectivity	DisplayPort™ is the latest high-performance connection technology between graphics cards and displays.
		Built-in HDMI with HDCP and up to 7.1 surround audio output.[2,4]	Enjoy your favorite PC entertainment on your HDTV by easily connecting with a single cable that also transports up to 7.1 surround audio.
Efficiency	ATI Radeon™ HD GPUs deliver breakthrough efficiency from new features that are energy efficient and help enable cool, quiet PCs.	ATI PowerPlay™ energy-saving technology.[10]	ATI Radeon HD GPUs have power saving features that can help reduce power consumption at idle or during low-usage.
		Cool and quiet operation	Using advanced 55nm process technology, the chips are designed to use less power. Take advantage of high-end Windows Vista® features while running efficiently and quietly.

ATI CrossFireX™ Multi-GPU Technology

ATI CrossFireX™ is AMD's next-generation multi-GPU technology designed to scale up to two, three or four GPUs natively with compatible motherboard chipsets.[9] Support for PCI Express 2.0 bandwidth and DirectX 10.1 features are part of the open platform that delivers ultimate gaming performance and visual quality.

ATI Hybrid Graphics

Based on ATI CrossFireX™ multi-GPU technology, ATI Hybrid Graphics brings enhanced gaming performance, system level efficiency and multi-monitor functionality to the affordable PC. ATI Hybrid CrossFireX™ turns on multi-GPU performance by combining the power of both AMD 780 Series Chipset GPUs and ATI Radeon™ HD 3400 Series GPUS to drive the advanced games available today.

ATI Catalyst™ Software Suite

ATI Catalyst™ software enables unprecedented control of performance, visual quality and productivity for ATI Radeon™ GPUs. Every ATI Catalyst™ release strives to improve 3D graphics performance and the drivers are certified (WHQL) by Microsoft® and recommended for Windows Vista®

ATI Avivo™ HD Technology

Image Quality	- 10-bit Photos (1 Billion Colors)[6] - High-quality DVD playback with enhanced upscaling - Automatic and dynamic contrast adjustment
HD Video	- UVD : full-spec 1080p Blu-ray Disc and HD video hardware decoding and playback on all ATI Radeon™ HD 3000 Series and newer GPUs[3] - UVD 2 : adds dual stream (PIP) and support for BD-Live applications for ATI Radeon™ HD 4000 Series GPUs
Connectivity	- HDMI with 5.1 or 7.1 audio support and HDCP built into the GPU for seamless connections to home theaters (may require optional DVI-HDMI adapter) - Dual-link DVI with two HDCP keys on all GPUs for full HD experience - DisplayPort™ Certified - ATI Radeon™ HD 3400 Series, ATI Radeon HD™ 3600 Series and ATI Radeon™ HD 4800 Series GPUs

The Ultimate Visual Experience™

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AMD Smarter Choice

Key GPU Features: ATI Radeon™ HD 3000 & ATI Radeon™ HD 4000 Series

HD Gaming

TeraScale Engine. The ATI Radeon™ HD 4800 Series features over 1 teraFLOP of GPU compute power.

Microsoft® DirectX® 10.1 support. Top to bottom optimization.

PCI Express® 2.0 support. 2x the bus bandwidth over PCIe® 1.1 for improved performance.

ATI CrossFireX™ Multi-GPU. Only ATI CrossFireX™ Technology brings the option of up to 4 ATI Radeon™ GPU's in one system for ultimate upgradeability.[9]

ATI Hybrid Graphics[7] Combine integrated graphics with discrete for enhanced performance, productivity and efficiency.

Connectivity

Multi-monitor support. Seeing is the believing; up to 8 monitors in one system with ATI Surround View™ technology!

DisplayPort. Built into certain GPUs for the latest in display connectivity.

HDMI with Surround Audio built in. Full HD and up to 7.1 audio channels in a clean, easy to install solution.

HD Video

ATI Avivo™ HD video technology. Unmatched quality and technology for enthusiast video needs.[1]

UVD 2.0 technology. Full GPU hardware video decoding of MPEG-2, H.264 and VC-1 that lets the CPU multi-task while watching Blu-ray.

Efficiency

55nm chip technology. AMD's advanced graphics chip manufacturing process that enables cool, quiet and energy efficient performance.

ATI PowerPlay™ technology.[10]

Feature Overview

				Key Technologies									Graphics					Video			
	Segment	Product	Best suitable for	Designed for DirectX®10.1 (SM 4.1)	Designed for DirectX®10 (SM 4.0)	AGP Support[5]	PCI Express® 2.0 support	ATI CrossFireX™-ready	ATI Hybrid CrossFireX™ Ready	ATI Avivo™ HD [1]	Unified Video Decoder (UVD)	Built-in HDMI and Surround Sound (HDCP) (2,4)	Stream Processing Units	Memory Type Supported	Memory Size (max.)	Memory Bandwidth (max.)	Slots	Capable Video Output Resolution [3]	Max. Resolution Analog	Max. Resolution Digital	Driver and System Control
ATI Radeon™ HD 4000 Series	Ultimate	ATI Radeon™ HD 4870 X2	Ultimate Gamer, Technology Enthusiast	●	●		●	●		●	UVD 2	7.1	1600	GDDR5	2GB	230 GB/sec	2	1080p	2048 x 1536	2560 x 1600	ATI Catalyst™ Control Center
		ATI Radeon™ HD 4850 X2	Ultimate Gamer, Technology Enthusiast	●	●		●	●		●	UVD 2	7.1	1600	GDDR3	2GB	128 GB/sec	2				
	Performance	ATI Radeon™ HD 4870	Ultimate Gamer, Technology Enthusiast	●	●		●	●		●	UVD 2	7.1	800	GDDR5	1GB	115 GB/sec	2				
		ATI Radeon™ HD 4850	Ultimate Gamer, Technology Enthusiast	●	●		●	●		●	UVD 2	7.1	800	GDDR3	1GB	64 GB/sec	1				
	Mainstream	ATI Radeon™ HD 4670	Gaming & Video Enthusiast	●	●		●	●		●	UVD 2	7.1	320	GDDR3/DDR3	512MB/1GB	29-32 GB/sec	1				
		ATI Radeon™ HD 4650	Gaming & Video Enthusiast	●	●		●	●		●	UVD 2	7.1	320	DDR2	512MB	16 GB/sec	1				
ATI Radeon™ HD 3000 Series	Performance	ATI Radeon™ HD 3870	Power Gamer, Technology Enthusiast	●	●	●	●	●		●	UVD	5.1	320	GDDR3/4	1GB	58-72 GB/sec	2				
		ATI Radeon™ HD 3850	Gaming & Video Enthusiast	●	●	●	●	●		●	UVD	5.1	320	DDR2/GDDR3	1GB	32-53 GB/sec	1				
	Mainstream	ATI Radeon™ HD 3650	Gaming & Video Enthusiast	●	●	●	●	●		●	UVD	5.1	120	DDR2/GDDR3	512MB	16-26 GB/sec	1				
	Value	ATI Radeon™ HD 3470	Advanced PC User, Video Enthusiast, Casual Gamer	●	●	●	●	●	●	●	UVD	5.1	40	GDDR3	512MB	15 GB/sec	1				
		ATI Radeon™ HD 3450	Advanced PC User, Video Enthusiast, Casual Gamer	●	●	●	●	●	●	●	UVD	5.1	40	DDR2	512MB	8 GB/sec	1				
ATI Radeon™ HD 2000 Series	Value	ATI Radeon™ HD 2400 PRO	Advanced PC User, Casual Gamer		●	●			●	●	UVD	5.1	40	DDR2	512MB	6 GB/sec	1	**			

Product Segments

Ultimate		Performance		Mainstream		Value	
ATI Radeon™ HD 4870 x2		ATI Radeon™ HD 4850	GeForce® 9800 GTX+	ATI Radeon™ HD 4670	GeForce® 9500 GT	ATI Radeon™ HD 3470	GeForce® 9400 GS
ATI Radeon™ HD 4850 X2	GeForce® GTX 280	ATI Radeon™ HD 3870	GeForce® 9600 GT	ATI Radeon™ HD 4650	GeForce® 9500 GT	ATI Radeon™ HD 3450	GeForce® 9300
ATI Radeon™ HD 4870	GeForce® GTX 260	ATI Radeon™ HD 3850	GeForce® 9600 GSO	ATI Radeon™ HD 3650	GeForce® 9500 GS		

* ATI Radeon™ HD 3870 GPUs support PCIe 2.0. Some third party board configurations may not fully comply with complete PCIe 2.0 specification and operate at PCIe 1.1 specifications on motherboards that support PCIe 2.0. Please consult with board manufacturer if this is an important feature for you.

** Certain configurations of the ATI Radeon™ HD 2400 PRO may not support 1080p output. Please consult with board manufacturer if this is an important feature for you.

1) ATI Avivo™ and ATI Avivo HD are technologies that include a broad set of capabilities offered by certain ATI Radeon™ GPUs. Not all products have all features and full enablement of some capabilities may require complementary products.

2) May not support all HDMI displays. Please visit AMD Customer Care at ati.amd.com for more information.

3) HD output requires HD display capable of resolution supported by the specific graphics product.

4) 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.

5) Indicated ATI Radeon™ GPUs support AGP. Not all board manufacturers may manufacture AGP boards. Please consult with board manufacturers if this is an important feature for you.

6) 10-bit display required.

7) ATI Hybrid Graphics requires a compatible AMD 7-Series Integrated Chipset-based motherboard and an ATI Radeon™ HD 3400 Series GPU-based graphics card.

8) ATI Radeon HD 4800 Series support Blu-ray Picture-in-Picture (PIP) capabilities

9) Number of installable cards subject to motherboard design and may require a specialized power supply

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