Feature Matrix for Free Radeon Drivers

This page is only for free Radeon drivers using KMS. radeon (xf86-video-ati) for 2D; radeon, r200 Mesa and r300, r600, radeonsi Gallium drivers only. THIS PAGE IS NOT FOR FGLRX/CATALYST DRIVERS PROVIDED BY AMD/ATI.

See RadeonFeatureUMS for radeon in UMS.

See radeonhd:feature for radeonhd.

Also check out the GalliumStatus and ATIRadeon at DRI wiki.

- "**DONE**" means that it is implemented and relatively bug-free.
- "**MOSTLY**" means that it is implemented but has some known bugs.
- "**WIP**" means that someone has started on the initial implementation.
- "**BIOS**" means only if supported by your BIOS. No software support. Yet.
- "**N/A**" means that the feature is not supported by the hardware.
- "**N/N**" means that the feature will not be implemented, because a better alternative is or will be available.
- "**TODO**" means that someone needs to write the code. The required knowledge to write the code may or may not be known. Please ask on #radeon if you want to get your feet wet on this.
- "**UNKNOWN**" means that the current status of this item isn't known. You are free to update it if you know.

2D features	R100	R200	R300/R400	R500	R600/700	Evergreen	N.Islands	S.Islands[1]	C.Islands	V.Islands	A.Islands
Kernel Driver	radeon	radeon	radeon	radeon	radeon	radeon	radeon	radeon	radeon	amdgpu	amdgpu
Kernel Modesetting	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Max Supported Displays (Eyefinity)[2]	1-2	2	2	2	2	2-6	4-6	2-6	2-6	2-6	4-6
XRandR 1.2	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
DRI2	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Page Flipping	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
ShadowFB	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
2D Acceleration (EXA)	DONE	DONE	DONE	DONE	DONE	DONE	DONE	N/A	N/A	N/A	N/A
2D Acceleration (Glamor)[3]	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Textured Xv	DONE	DONE	DONE	DONE	DONE	DONE	DONE	Glamor	Glamor	Glamor	Glamor
Video Decode (VDPAU/OpenMax/VAAPI) on UVD	N/A	N/A	N/A	N/A	DONE [4]	DONE	DONE	DONE	DONE	DONE	DONE
Video encode (OpenMax/VAAPI) on VCE	N/A	N/A	N/A	N/A	N/A	N/A	DONE [35]	DONE	DONE	DONE	DONE
Hybrid Graphics/PowerXpress/Enduro[5]	N/A	N/A	N/A	N/A	MOSTLY	MOSTLY	MOSTLY	MOSTLY	MOSTLY	MOSTLY	MOSTLY
Mesa 3D features	**R100**	**R200**	**R300/R400**	**R500**	**R600/700**	**Evergreen**	**N.Islands**	**S.Islands[1]**	**C.Islands**	**V.Islands**	**A.Islands**
3D Driver	radeon	r200	r300g	r300g	r600g	r600g	r600g	radeonsi	radeonsi	radeonsi	radeonsi
Primitives	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Stippled Primitives	DONE	DONE	TODO	TODO	TODO	TODO	TODO	DONE	DONE	DONE	DONE
Smooth Primitives	DONE	DONE	TODO	TODO	TODO	TODO	TODO	DONE	DONE	DONE	DONE

Textures	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Hardware TCL	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Vertex Shaders	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Fragment (Pixel) Shaders	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
GLSL	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Color Buffer Tiling	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE [7]	DONE	DONE	DONE
Texture Tiling	TODO	TODO	DONE	DONE	DONE	DONE	DONE	DONE [7]	DONE [7]	DONE	DONE
S3TC decompression (via env variable / drirc)	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE [7]	DONE	DONE	DONE
full S3TC (via libtxc_dxtn.so)	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE [7]	DONE	DONE	DONE
Geometry Shaders	N/A	N/A	N/A	N/A	DONE [17]	DONE	DONE	DONE	DONE	DONE	DONE
Tessellation Shader Stages	N/A	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE
Compute Shaders	N/A	N/A	N/A	N/A	N/A	WIP	WIP	DONE	DONE	DONE	DONE
Anti-Aliasing (MSAA)	N/A	N/A	DONE	DONE	DONE [12]	DONE [12]	DONE [12]	DONE	DONE	DONE	DONE
Anti-Aliasing (MLAA)	N/A	N/A	N/A	MOSTLY	DONE	DONE	not tested	not tested	not tested	not tested	not tested
Anisotropic Filtering	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Hyper-Z	WIP	TODO	MOSTLY [14]	DONE	DONE[15]	DONE[15]	DONE[15]	DONE[15]	DONE[15]	DONE[15]	DONE[15]
OpenGL Compliance (Driver/Hardware)	1.3/1.3	1.3/1.4	2.1/2.1[16]	2.1/2.1[16]	3.3/3.3[17]	4.2/4.5[19]	4.2/4.5[19]	4.5/4.5[18]	4.5/4.5[20]	4.5/4.5 [20]	4.5/4.5 [20]
Output	**R100**	**R200**	**R300/R400**	**R500**	**R600/700**	**Evergreen**	**N.Islands**	**S.Islands[1]**	**C.Islands**	**V.Islands**	**A.Islands**
TMDS (DL-DVI, SL-DVI, HDMI)	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE (DAL)
LVDS	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	N/A
VGA	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	N/A
TV Out	DONE	DONE	DONE [36]	DONE	DONE	DONE	N/A	N/A	N/A	N/A	N/A
DisplayPort	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE (DAL)
eDP	N/A	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE (DAL)
HDMI Audio[22]	N/A	N/A	N/A	N/A	DONE	DONE [23]	DONE [24]	DONE	DONE	DONE (DAL)	DONE (DAL)
DP Audio	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE (DAL)	DONE (DAL)
Power Saving	**R100**	**R200**	**R300/R400**	**R500**	**R600/700**	**Evergreen**	**N.Islands**	**S.Islands[1]**	**C.Islands**	**V.Islands**	**A.Islands**
Engine reclocking	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Memory reclocking	TODO	DONE	TODO	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Voltage adjusting	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Thermal sensors	N/A	N/A	DONE [26]	DONE [26]	DONE [28]	DONE [28]	DONE [28]	DONE [28]	DONE	DONE	DONE

Dynamic Power Management (DPM)	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE
Other	**R100**	**R200**	**R300/R400**	**R500**	**R600/700**	**Evergreen**	**N.Islands**	**S.Islands**[1]	**C.Islands**	**V.Islands**	**A.Islands**
Suspend Support	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE	DONE
CrossFire (multi-card)	N/A	N/A	N/A	TODO	TODO	TODO	TODO	TODO	TODO	TODO	TODO
Compute (OpenCL)[33]	N/A	N/A	N/A	N/A	TODO	WIP	WIP	WIP	DONE (ROCm)	DONE (ROCm)	DONE (ROCm)
Asynchronous DMA	N/A	N/A	N/A	N/A	DONE	DONE	DONE	DONE	DONE	DONE	DONE

VSYNC

There are several mechanisms involved in tear-free rendering due to limitations in X.

3D driver environment variable

- vblank_mode - selects whether or not the 3D application should synchronize to vblank.

DDX driver options

- EnablePageFlip - This option enables the use of pageflipping (switching the display controller's base address pointer) rather than blits for GL buffer swaps. It only applies to fullscreen GL apps. Pageflipping is always synced to vblank at the moment.
- SwapBuffersWait - This option prevents tearing for GL buffer swaps by waiting to update the front buffer until scanout has passed the area of the screen the GL buffer swap is going to blit to.
- EXAVSync - This option prevents tearing for EXA operations by waiting to update the front buffer until scanout has passed the area of the screen the EXA operation is going to render to.

Xv Attribute

- XV_VSYNC - This option prevents tearing when playing back videos using Xv by waiting to update the video image until scanout has passed the area of the screen displaying the video. It only prevents tearing if Xv is rendering directly to the front buffer. If you are using a compositer, this does not prevent tearing because Xv is rendering to an offscreen buffer and the compositor copied it to the front buffer.

KMS Power Management Options

Kernel 2.6.35 or newer is required. The pm code supports three basic methods:

1. "dynpm"
2. "profile"
3. "dpm"

You can select the methods via sysfs. Echo "dynpm" or "profile" to /sys/class/drm/card0/device/power_method. "dpm" support, must be selected at boot (via radeon.dpm=1) and is only supported on R6xx and newer asics.

Controlling the fan speed directly is not possible (and would be very dangerous), but it can be lowered by setting lower power profile.

The "dynpm" method dynamically changes the clocks based on the number of pending fences, so performance is ramped up when running GPU intensive apps, and ramped down when the GPU is idle. The reclocking is attemped during vertical blanking periods, but due to the timing of the reclocking functions, doesn't not always complete in the blanking period, which can lead to flicker in the display. Due to this, dynpm only works when a single head is active.

The "profile" method exposes five profiles that can be selected from:

1. "default"
2. "auto"
3. "low"
4. "mid"
5. "high"

Select the profile by echoing the selected profile to /sys/class/drm/card0/device/power_profile.

- "default" uses the default clocks and does not change the power state. This is the default behavior.
- "auto" selects between "mid" and "high" power states based on the whether the system is on battery power or not. The "low" power state are selected when the monitors are in the dpms off state.
- "low" forces the gpu to be in the low power state all the time. Note that "low" can cause display problems on some laptops; this is why auto does not use "low" when displays are active.
- "mid" forces the gpu to be in the "mid" power state all the time. The "low" power state is selected when the monitors are in the dpms off state.
- "high" forces the gpu to be in the "high" power state all the time. The "low" power state is selected when the monitors are in the dpms off state. The "profile" method is not as agressive as "dynpm," but is currently much more stable and flicker free and works with multiple heads active.

The "dpm" method uses hardware on the GPU to dynamically change the clocks and voltage based on GPU load. It also enables clock and power gating.

Power management is supported on all asics (r1xx-evergreen) that include the appropriate power state tables in the vbios; not all boards do (especially older desktop cards). "dpm" is only supported on R6xx and newer asics.

Thermal sensors are implemented via external i2c chips or via the internal thermal sensor (rv6xx-evergreen only; supported in 2.6.36 or newer); not all OEMs implement a thermal sensor. To get the temperature on asics that use i2c chips, you need to load the appropriate hwmon driver for the sensor used on your board (lm63, lm64, etc.). The drm will attempt to load the appropriate hwmon driver. On boards that use the internal thermal sensor, the drm will set up the hwmon interface automatically. When the appropriate driver is loaded, the temperatures can be accessed via lm_sensors tools or via sysfs in /sys/class/hwmon.

Linux kernel parameters

Try *modinfo -p radeon* to find up-to-date parameters. To check default values look at drivers/gpu/drm/radeon/radeon_drv.c or drivers/gpu/drm/amd/amdgpu/amdgpu_drv.c in Linux kernel source. To check current values look at */sys/class/drm/card*/device/driver/module/holders/radeon/parameters/ or /sys/class/drm/card/device/driver/module/holders/amdgpu/parameters/**

Decoder ring for engineering vs marketing names

There are a lot of marketing names. For an authoritative list of marketing to family relations, please see this link.

Family	Engineering Names	Marketing Names
R100	R100, RV100, RV200, RS100, RS200	7xxx, 320-345
R200	R200, RV250, RV280, RS300	8xxx - 9250
R300	R300, R350, RV350, RV380, RS400, RS480	9500 - 9800, X300 - X600, X1050 - X1150, 200M
R400	R420, R423, RV410, RS600, RS690, RS740	X700 - X850, X12xx, 2100
R500	RV515, R520, RV530, RV560, RV570, R580	X1300 - X2300, HD2300
R600	R600, RV610, RV630, RV620, RV635, RV670, RS780, RS880	HD2400 - HD4290

R700	RV770, RV730, RV710, RV740	HD4330 - HD5165, HD5xxV
Evergreen	CEDAR, REDWOOD, JUNIPER, CYPRESS, PALM (Wrestler/Ontario), SUMO (Llano), SUMO2 (Llano)	HD5430 - HD5970, all HD6000 not listed under *Northern Islands*, HD7350
Northern Islands	ARUBA (Trinity/Richland), BARTS, TURKS, CAICOS, CAYMAN	HD6450, HD6570, HD6670, HD6790 - HD6990, HD64xxM, HD67xxM, HD69xxM, HD7450 - HD7670
Southern Islands	CAPE VERDE, PITCAIRN, TAHITI, OLAND, HAINAN	HD7750 - HD7970, R9 270, R9-280, R7 240, R7 250
Sea Islands	BONAIRE, KABINI, MULLINS, KAVERI, HAWAII	HD7790, R7 260, R9 290
Volcanic Islands	TONGA, ICELAND/TOPAZ, CARRIZO, FIJI, STONEY, POLARIS10, POLARIS11, POLARIS12, VEGAM	R9 285

Radeon Graphics/Compute Hardware

GFX Core	Engineering Names	Shader Model	DX	OpenGL	Max Texture Size	Max Renderbuffer Size	ISA
GFX1	R100, RV100, RV200, RS100, RS200	NA	7	1.3	2048	2048	
GFX1	R200, RV250, RV280, RS300	1	8	1.4	2048	2048	
GFX2	R300, R350, RV350, RV380, RS400, RS480	2	9	2.1	2048	2560	
GFX2	R420, R423, RV410, RS600, RS690, RS740	2	9	2.1	2048	4021	
GFX2	RV515, R520, RV530, RV560, RV570, R580	3	9	2.1	4096	4096	
GFX3	R600, RV610, RV630, RV620, RV635, RV670, RS780, RS880	4	10	3.3	8192	8192	VLIW5
GFX3	RV770, RV730, RV710, RV740	4	10	3.3	8192	8192	VLIW5
GFX4	CEDAR, REDWOOD, JUNIPER, CYPRESS, PALM (Wrestler/Ontario), SUMO (Llano), SUMO2 (Llano), BARTS, TURKS, CAICOS	5	11	4.x	16384	16384	VLIW5
GFX5	CAYMAN, ARUBA (Trinity/Richland)	5	11	4.x	16384	16384	VLIW4
GFX6	CAPE VERDE, PITCAIRN, TAHITI, OLAND, HAINAN	5	12	4.x	16384	16384	GCN
GFX7	BONAIRE, KABINI, MULLINS, KAVERI, HAWAII	5	12	4.x	16384	16384	GCN
GFX8	TONGA, ICELAND/TOPAZ, CARRIZO, FIJI, STONEY, POLARIS10, POLARIS11, POLARIS12, VEGAM	5	12	4.x	16384	16384	GCN
GFX9	VEGA10, VEGA12, VEGA20, RAVEN	6	12	4.x	16384	16384	GCN

Radeon Display Hardware

Display Core	Engineering Names	Display Controllers	PLLs (DP & non-DP)	PLLs (DP-only)	DACs	TV Encoder	DVO	Digital	Notes
Classic Radeon	Rage128, R1xx-R4xx	1-2	1-2	0	1-2	0-1	1	2 (1 TMDS, 1 LVDS)	
DCE1/Avivo	R5xx	2	2	0	2	1	1	2 (1 TMDS, 1 LVDS/TMDS)	
DCE2	R600, RV610, RV630, RV670, RS600, RS690, RS740	2	2	0	2 (R600, RV610, RV630, RV670), 1 (RS600, RS690, RS740)	1	1	2 (1 TMDS, 1 LVDS/TMDS)	Adds HDMI 1.2 Support
DCE3	RV620, RV635, RS780, RS880	2	2	0	2 (RV620, RV635), 1 (RS780, RS880)	1	1	3 (LVDS/TMDS/DP)	Adds support for DisplayPort, HDMI 1.3 Support
DCE3.1	RV770	2	2	0	2	1	1	3 (LVDS/TMDS/DP)	
DCE3.2	RV710, RV730, RV740	2	2	0	2	1	1	5 (LVDS/TMDS/DP)	Adds support for up to 5 digital outputs
DCE4	CEDAR, REDWOOD, JUNIPER, CYPRESS	4-6	2	0-1	2	1	1	6 (LVDS/TMDS/DP)	Adds support for up to 6 independant displays (max of 2 non-DisplayPort displays with independent timing)
DCE4.1	PALM (Wrestler/Ontario), SUMO (Llano), SUMO2 (Llano)	2	2	0	1 (PALM), 0 (SUMO, SUMO2)	1	1	6 (LVDS/TMDS/DP)	VGA and LVDS are implemented via DP bridge chips
DCE5	BARTS, TURKS, CAICOS, CAYMAN	4-6	2	1	1	0	1	6 (LVDS/TMDS/DP)	Adds improved gamma correction, HDMI 1.4 support, DisplayPort 1.2 support
DCE6	CAPE VERDE, PITCAIRN, TAHITI	6	2	1	1	0	1	6 (LVDS/TMDS/DP)	HDMI 4K modes
DCE6.1	ARUBA (Trinity/Richland)	4	2	0	0	0	1	6 (TMDS/DP)	VGA and LVDS are implemented via DP bridge chips
DCE6.4	OLAND	2	2	1	1	0	1	2 (TMDS/DP)	
DCE8.1	KAVERI	4	3	0	0	0	0	7 (TMDS/DP)	VGA and LVDS are implemented via DP bridge chips
DCE8.2	BONAIRE	6	3	0	1	0	1	6 (LVDS/TMDS/DP)	
DCE8.3	KABINI, MULLINS	2	2	1	1	0	0	2 (LVDS/TMDS/DP)	
DCE8.5	HAWAII	6	3	0	0	0	1	6 (TMDS/DP)	
DCE10	TONGA, FIJI	6	3	0	0 (FIJI), 1 (TONGA)	0	1	6 (TMDS/DP)	
DCE11	CARRIZO, STONEY	2-3	2	0	0	0	0	7 (TMDS/DP)	VGA and LVDS are implemented via DP bridge chips
DCE11.2	POLARIS10, POLARIS11, POLARIS12, VEGAM	5-6	5-6	1	0	0	0	6 (TMDS/DP)	
DCE12.0	VEGA10, VEGA12	6	6	1	0	0	0	6 (TMDS/DP)	
DCE12.1	VEGA20	6	6	1	0	0	0	6 (TMDS/DP)	
DCN1.0	RAVEN	2-4	2-4	0	0	0	0	4 (TMDS/DP)	

Radeon UVD (Unified Video Decoder) Hardware

UVD Core	Engineering Names	MPEG2 Decode	MPEG4 Decode	MPEG4 AVC Decode	VC1 Decode	HEVC Decode	HEVC Encode	JPEG Decode	Max Size	Notes
UVD1.0	RV610, RV630, RV670, RV620, RV635	No	No	Yes	Yes	No	No	No	2K	

UVD2.0	RS780, RS880, RV770	No	No	Yes	Yes	No	No	No	2K	
UVD2.2	RV710, RV730, RV740	No	No	Yes	Yes	No	No	No	2K	
UVD2.3	CEDAR, REDWOOD, JUNIPER, CYPRESS	No	No	Yes	Yes	No	No	No	2K	
UVD3.0	PALM (Wrestler/Ontario), SUMO (Llano), SUMO2 (Llano)	Yes	Yes	Yes	Yes	No	No	No	2K	
UVD3.1	BARTS, TURKS, CAICOS, CAYMAN	Yes	Yes	Yes	Yes	No	No	No	2K	
UVD3.2	ARUBA (Trinity/Richland), TAHITI	Yes	Yes	Yes	Yes	No	No	No	2K	
UVD4.0	CAPE VERDE, PITCAIRN, OLAND	Yes	Yes	Yes	Yes	No	No	No	2K	
UVD4.2	KAVERI, KABINI, MULLINS, BONAIRE, HAWAII	Yes	Yes	Yes	Yes	No	No	No	2K	
UVD5.0	TONGA	Yes	Yes	Yes	Yes	No	No	No	4K	
UVD6.0	CARRIZO, FIJI	Yes	Yes	Yes	Yes	Yes	No	Yes	4K	
UVD6.2	STONEY	Yes	Yes	Yes	Yes	Yes	No	Yes	4K	Supports 10bit
UVD6.3	POLARIS10, POLARIS11, POLARIS12, VEGAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4K	Supports 10bit
UVD7.0	VEGA10, VEGA12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4K	Supports 10bit
UVD7.2	VEGA20	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4K	Supports 10bit

Radeon VCE (Video Compression Engine) Hardware

VCE Core	Engineering Names	MPEG4 AVC Encode	Max Size	Notes
VCE1.0	ARUBA (Trinity/Richland), CAPE VERDE, PITCAIRN, TAHITI, OLAND	Yes	2K	
VCE2.0	KAVERI, KABINI, MULLINS, BONAIRE, HAWAII	Yes	2K	
VCE3.0	TONGA, FIJI	Yes	4K	
VCE3.1	CARRIZO	Yes	4K	
VCE3.4	STONEY, POLARIS10, POLARIS11, POLARIS12, VEGAM	Yes	4K	
VCE4.0	VEGA10, VEGA12	Yes	4K	
VCE4.1	VEGA20	Yes	4K	

Radeon VCN (Video Core Next) Hardware

VCN Core	Engineering Names	MPEG2 Decode	MPEG4 Decode	VC1 Decode	MPEG4 AVC Decode	MPEG4 AVC Encode	HEVC Decode	HEVC Encode	VP9 Decode	VP9 Encode	JPEG Decode	Max Size	Notes
VCN1.0	RAVEN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	4K	Supports 10bit

Where to get the drivers

- Xorg radeon DDX (xf86-video-ati)
- Xorg amdgpu DDX (xf86-video-amdgpu)
- Mesa 3D driver (radeon, r200, r300g, r600g, radeonsi)
- KMS DRM (Linux Kernel)
- libdrm (libdrm_radeon, libdrm_amdgpu)

Where to file defect reports

http://bugs.freedesktop.org using the following values for Product : Component...

- Xorg radeon DDX - xorg : Driver/Radeon or Driver/AMDgpu
- Mesa 3D driver (1xx) - Mesa : Drivers/DRI/Radeon
- Mesa 3D driver (2xx) - Mesa : Drivers/DRI/r200
- Mesa 3D driver (3xx-5xx) - Mesa : Drivers/Gallium/r300
- Mesa 3D driver (6xx-NI) - Mesa : Drivers/Gallium/r600
- Mesa 3D driver (SI-VI) - Mesa : Drivers/Gallium/radeonsi
- KMS DRM aka Kernel graphics driver - DRI : DRM/Radeon or DRM/AMDgpu

Documentation

- A presentation about R600 for very beginners
- AMD R3xx 3D Register Reference
- AMD R5xx Acceleration
- AMD R6xx/R7xx 3D Register Reference
- AMD R6xx/R7xx Acceleration
- AMD Evergreen 3D Register Reference
- AMD Cayman/Trinity 3D Register Reference
- AMD Evergreen/Northern Islands Acceleration
- AMD Southern Islands 3D Register Reference
- AMD Sea Islands 3D Register Reference
- AMD Southern Islands/Sea Islands Acceleration
- AMD rv630
- AMD rs690
- AMD M56
- AMD m76
- AMD HDA audio verbs
- AMD R6xx shader ISA
- AMD R7xx shader ISA
- AMD Evergreen shader ISA
- AMD Cayman/Trinity shader ISA
- AMD Southern Islands Series ISA
- AMD Sea Islands Series ISA
- AMD Volcanic Islands Series ISA
- AMD "Vega" Series ISA

Links

- Wikipedia AMD GPUs
- AMD Hardware Documentation
- AMD OpenCL and Compute Resources
- AMD Developer Guides (RS780/RS880, SB7xx, etc.)

Footnotes

[1] Kernel 3.4 required

[2] Depends on the OEM board. Max of 2 (evergreeen-SI) or 3 (CI) non-Displayport displays with independent timing.

[3] Requires a 3D driver with shader support

[4] RV770, RS780/880, R6xx require kernel 3.18

[5] There are two versions of hybrd graphics: MUXed and MUX-less. MUXed have a display MUX to switch the displays between the discrete and integrated cards. MUXed systems can be switched using vgaswitcheroo. MUX-less do not have a display MUX and the displays are only connected to the integrated card. On MUX-less systems, the discrete card is solely for rendering, not display. X Server 1.14 is required to support rendering and display from different cards. Most new laptops (2011+) are MUX-less.

[7] Kernel 3.10 required

[12] Kernel 3.6 required

[14] Needs piglit and Lightsmark testing before enabling by default, see mesa commit 12dcbd595

[15] Currently enabled by default. It can be disabled by setting the environment variable R600_DEBUG=nohyperz.

[16] Hardware doesn't support ARB NPOT textures fully.

[17] Kernel 3.14 required. For older kernel, apply this kernel patch: http://www.spinics.net/lists/dri-devel/msg52745.html

[18] LLVM 3.9 and Kernel 4.7 required

[19] OpenGL 4.2 is currently only supported on CYPRESS, CAYMAN and ARUBA. All other chips are currently limited to OpenGL 3.3

[20] LLVM 3.9 required

[22] Older kernels require loading radeon with the audio parameter set to 1 (e.g., add radeon.audio=1 on the kernel command line in grub).

[23] Kernel 3.3 required

[24] Kernel 3.5 required

[26] i2c chip

[28] i2c chip or internal sensor

[33] See http://dri.freedesktop.org/wiki/GalliumCompute

[34] None

[35] ARUBA only

[36] No TV-out support on R4xx

Links: RadeonFeatureUMS radeon radeonhd radeonhd:feature

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