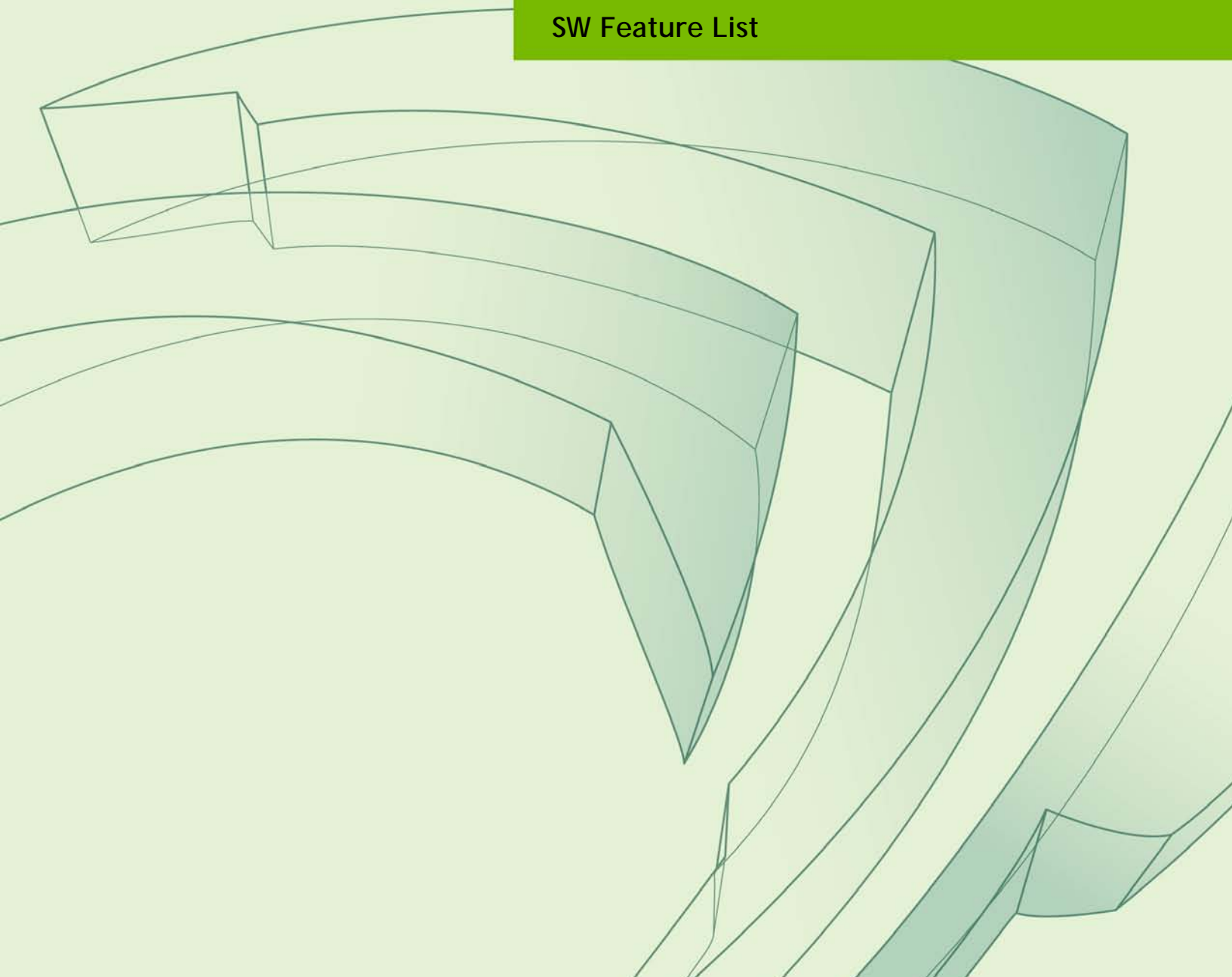




NVIDIA TEGRA LINUX DRIVER PACKAGE R12.BETA RELEASE

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SW Feature List



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SOFTWARE FEATURES

This section describes the software features expected to be supported with this release of NVIDIA® Tegra® Linux Driver Package, which provides users with a complete package to bring up Linux on certain Tegra devices.

This release supports NVIDIA® Tegra® 2 series: Tegra 250 (code-name Harmony), Ventana T2T (code-name Ventana). It also supports NVIDIA® Tegra® 3 series: Ventana T3T (code-name Cardhu). Additional application processors may be supported in a later release.

Note: Always check the *Release Notes* for constraints related to these features.

Read the following sections to learn more about supported features in this release.

- [Linux](#)
- [Graphics and Multimedia](#)
- [Audio Decoders \(Tegra 2/Tegra 3\)](#)
- [Video Decoders \(Tegra 2\)](#)
- [Video Decoders \(Tegra 3\)](#)
- [Reader Container Formats](#)
- [Streaming Protocols](#)
- [Displays](#)
- [Power](#)

LINUX

Kernel	Notes
Linux Kernel	2.6.36
Kernel Native Drivers	Notes
Audio	ALSA
External SD card	-
USB	Keyboard/mouse, mass storage device (MSD)
Wi-Fi	Firmware provided separately for Cardhu and Ventana; fully included for Harmony.
Boot Devices	Notes
eMMC	Cardhu and Ventana
NAND	Harmony
Additional Notes	
Unless otherwise noted, all features pertain to Cardhu, Harmony, and Ventana.	

GRAPHICS AND MULTIMEDIA

Media APIs	Notes
EGL 1.4	-
GStreamer OpenMAX plug-in	-
Open GL ES path extensions	-
OpenGL ES 1.1	-
OpenGL ES 2.0	-
Open GL ES path extensions	-
OpenMAX IL 1.1 decoding	Deprecated
OpenMAX AL	Targets a future release TBD
X11	ABI: 5, 6, 7, 8, 10, 11
X Resize, Rotate and Reflect Extension (RandR) 1.3	-
Additional Notes	
Unless otherwise noted, all features pertain to Cardhu, Harmony, and Ventana.	

AUDIO DECODERS (TEGRA 2/TEGRA 3)

The features in this table are supported by both Tegra 2 and Tegra 3.

Audio Decode	Profile	Resolution	Bitrate
AAC+	AAC-LC with SBR; mono, stereo, and 2-channel mixing only	Up to 48 kHz	Up to 320 kilobits per second (Kbps)
AAC-LC	Mono, stereo, and 2-channel mixing only	Up to 48 kHz	Up to 320 Kbps
eAAC+	AAC-LC with SBR+PS; mono, stereo, and 2-channel mixing only	Up to 48 kHz	Up to 320 Kbps
AMR-NB	1 channel	Up to 8 kHz	Up to 12.2 Kbps
AMR-WB	1 channel	Up to 16 kHz	Up to 23.85 Kbps
MP3	2 channel	Up to 48 kHz	Up to 320 Kbps
MPEG-2 (MPEG-1 Layer 2)	Audio	Up to 48 kHz	Up to 320 Kbps
Vorbis	Ogg* Audio	Up to 48 kHz	Up to 256 Kbps
WAV a-law, mu-law	8-bit, mono channel	8 kHz	Up to 64 Kbps
WAV linear PCM	16-bit, 2 channels	Up to 48 kHz	-
WMA 9 Std.	Standard 2-channel	Up to 48 kHz	Up to 384 Kbps
WMA Lossless	Lossless: Up to N1 Profile; WMA 10: 2 channel	Up to 48 kHz	-
WMA 10 Pro LBR	M2 Profile; 6 channel [5.1]	Up to 96 kHz	Up to 768 Kbps

VIDEO DECODERS (TEGRA 2)

The features in this table are supported by Tegra 2.

Video Decode	Profile and Level	Sampling Frequency and Bit rate/Frame rate	Supported Tools
DivX 4/5/6	HD 1080p Profile	Up to 1080p 30 fps Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC
H.263	Baseline Profile 0	Up to 4CIF 30 fps Up to 8 Mbps peak	Baseline Profile 0 tools
H.264	Baseline Profile @ L4	Up to 1080p 30 fps Up to 20 Mbps peak	All tools; Baseline Profile; Main Profile + B frames + Progressive; No CABAC; No weighted prediction
H.264	Main Profile @ L2.2	Up to 720p 30 fps Up to 8 Mbps	CABAC; With weighted prediction
H.264	Main Profile @ L2.2	Up to D1 30 fps Up to 4 Mbps	MBAFF; interlaced content; no deblocking
H.264	Main Profile @ L3.1	Up to 720p 30 fps Up to 8 Mbps	CABAC; No weighted prediction
H.264	High Profile @ L3.1	Up to 720p 30 fps Up to 5 Mbps	CABAC; With weighted prediction
H.264	High Profile @ L3.1	Up to 720p 30 fps Up to 5 Mbps	CAVLC; No weighted prediction
H.264	High Profile @ L3.1	Up to D1 30 fps Up to 3 Mbps	Progressive; CAVLC; With weighted prediction
H.264	Main Profile/ High Profile @ L2.2	Up to D1 60i Up to 4 Mbps	Main Profile and High Profile tools; Interlaced; CABAC; No deblocking
MPEG-4	Simple Profile @ L3	Up to CIF 30 fps Up to 1 Mbps	All tools
MPEG-4	Advanced Simple Profile @ L5	Up to 1080p 30 fps Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC

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VC-1	Simple Profile/ Main Profile/ Advanced Profile	Up to 1080p 30 fps Up to 20 Mbps	All tools; Progressive
Xvid	Highdef Profile	Up to 1080p 30 fps Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC

VIDEO DECODERS (TEGRA 3 ONLY)

The features in this table are supported by Tegra 3.

Video Decode	Profile and Level	Sampling Frequency and Bit rate/Frame rate	Supported Tools
DivX 4/5/6	1080p HD Profile	Up to 1080p @ 30 fps Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC
H.263	Baseline Profile 0	Up to 4CIF @ 30 fps Up to 8 Mbps	Baseline Profile 0 Tools
H.264 AVC	Baseline Profile @ L4.1	Up to 1080p @ 30p Up to 62.5 Mbps	All tools from Baseline Profile
H.264 AVC	Main Profile/ High Profile @ L4.1	Up to 1080p @ 30p/60i Up to 62.5 Mbps	All tools from Main Profile and High Profile; Full Blu-ray compliant (both 1SD & 1HD)
H.264 AVC	Baseline Profile/ Main Profile/ High Profile @ L4.1	Up to 1080p @ 60p Up to 40 Mbps	All tools from Baseline Profile, Main Profile, and High Profile
H.264 AVC	Baseline Profile/ Main Profile/ High Profile @ L4.1	Up to 720 @ 60p Up to 12 Mbps	All tools from Baseline Profile, Main Profile, and High Profile
H.264 AVC	Baseline Profile/ Main Profile/ High Profile @ L4.1	Up to 1440 @ 24p/48i Up to 40 Mbps	All tools from Baseline Profile, Main Profile, and High Profile
MPEG-2	Main Profile @ High Level	Up to 720 @ 60p Up to 80 Mbps	Full Blu-ray, HD-DVB, and ATSC (HDTV) compliant
MPEG-2	Main Profile @ High Level	Up to 1080p @ 30p/60i Up to 80 Mbps	Full Blu-ray, HD-DVB, and ATSC (HDTV) compliant
MPEG-4	Advanced Simple Profile @ L5	Up to 1080 @ 30p Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC

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VC-1	Simple Profile/ Main Profile/ Advanced Profile	Up to 1080p @ 30p Up to 45 Mbps	Blu-ray compliant
Xvid	Highdef Profile	Up to 1080p @ 30 fps Up to 12 Mbps	All tools; No Qpel; No interlace; No GMC

READER CONTAINER FORMATS

Codes are provided by GStreamer. You can download GStreamer codecs from the gstreamer opensource project at:

<http://gstreamer.freedesktop.org>

Or you can use `apt-get` in the provided Ubuntu-derived sample file system.

Hardware codecs are not included in the base release but can be provided separately under a software license agreement.

AMR	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AMR-NB	n/a
	AMR-WB	
ASF/WMV	Audio Codecs	Video Codecs
Provided by GStreamer (UP)	WMA 10	VC-1
	WMA Pro	
	WMA Lossless	
AVI	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AC3	DivX
	AAC	H.263
	AAC+	H.264 AVC
	eAAC+	MPEG-4
	MP3	Xvid
	MPEG-2	
M2TS/MPEG-TS	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AAC	H.264
	AAC+	MPEG-2
	eAAC+	VC-1
M4A	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AAC	n/a
	AAC+	
	eAAC+	
MKA	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AC3	n/a
	AAC	
	AAC+	

	eAAC+	
	MP2	
	MP3	
MKV	Audio Codecs	Video Codecs
Provided by GStreamer (BP)	AC3	DivX
	AAC	H.264
	AAC+	MPEG-4
	eAAC+	Xvid
	MP3	
MP3	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	MP3	n/a
MP4/3GP	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AAC	H.263
	AAC+	H.264 AVC
	eAAC+	H.264 MVC
	AMR-NB	MPEG-4
	AMR-WB	
MOV	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AAC	H.263
	AAC+	H.264 AVC
	eAAC+	MPEG-4
	AMR-NB	
	AMR-WB	
MPEG-PS/VOB	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	AAC	H.264
	AAC+	MPEG-2
	eAAC+	VC-1
OGG	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	Vorbis	n/a
RIFF	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	WAVE	n/a
WEBM	Audio Codecs	Video Codecs
Provided by GStreamer (BP)	Vorbis	VP8

WMA	Audio Codecs	Video Codecs
Provided by GStreamer (GP)	WMA 10	n/a
	WMA Pro	
	WMA Lossless	

STREAMING PROTOCOLS

Streaming protocols are provided by GStreamer. You can download GStreamer codecs from the gstreamer opensource project at:

<http://gstreamer.freedesktop.org>

Or you can use `apt-get` in the provided Ubuntu-derived sample file system.

Hardware codecs are not included in the base release but can be provided separately under a software license agreement.

Protocol	Notes
HTTP 1.0	ASF, AVI, 3GP, MOV, MP3, MP4, WMA, WMV
HTTP 1.1	ASF, AVI, 3GP, MOV, MP3, MP4, WMA, WMV
RTP/RTSP/RTCP	3GP, MP3
SDP (RFC 4566)	3GP

DISPLAYS

General	Notes
HDMI®-1.3	Harmony and Ventana; See the <i>Release Notes</i> for known issues.
HDMI®-1.4a	Cardhu

POWER

General	Notes
DVFS	Cardhu and Ventana
Ultra-Low Power Standby	Notes
Suspend (LP1)	-
Deep Sleep (LP0)	-
USB Suspend during Deep Sleep	TBD
Additional Notes	
Unless otherwise noted, all features pertain to Cardhu, Harmony, and Ventana.	