

1. General Description

The RTD1185DD-GR/RTD1185DA-GR/RTD1185MD-GR/RTD1185MA-GR is a highly integrated SoC for Consumer Electronic products requiring High Definition Media Playback, Wireless/Wired Networking, Mass Storage, and DTV capabilities.

Main features of the RTD1185 include HD MPEG1/2/4/H.264 & HD JPEG Decoder, HD AVC/VC-1 Decoder, HD RM/RMVB Decoder, HD AVS Decoder, DTV Recording & Timeshifting, AV Streaming/Transmission via Ethernet & WiFi, TV Encoder with CVBS/ YPbPr/SCART out, I²S, SPDIF out, HDMI Transmitter and PHY, OTP (One-Time Programmable ROM), dual USB 2.0 Host or one USB 2.0 Host/Device with dual port integrated PHY, NAND/NOR flash controller, SATA, PCI Express, Card reader supporting SD and MMC, Fast Ethernet MAC and PHY, and Gigabit Ethernet MAC.

2. Features

2.1. Hardware Features

- System and Peripherals
 - ◆ 500MHz MIPS24Kc processor
 - ◆ Video engine with HW acceleration
 - ◆ Audio engine with HW acceleration
 - ◆ Supports up to 512MB DDR2/DDR3 SDRAM with 32-bit data interface
 - ◆ Supports Serial NOR Flash with dual I/O data interface
 - ◆ Supports NAND Flash
 - ◆ Boot-ROM and OTP (One-Time Programmable ROM) for Secure-Boot and Key storage
 - ◆ Integrated SATA 2.0 MAC and PHY
 - ◆ Integrated Fast Ethernet MAC and PHY
 - ◆ Integrated Gigabit Ethernet MAC
 - ◆ Integrated dual USB 2.0 High Speed Host controller, or one Host/Device controller, and Dual PHY
 - ◆ Integrated PCI Express interface MAC and PHY
 - ◆ Supports SD and MMC Cards
 - ◆ Supports UART/IrDA/I²C/GPIO/EJTAG/VFD/RTC
- Audio Interface and Function
 - ◆ Built-in Audio DAC with 24-bit resolution
 - ◆ One 2-CH I²S interface for Audio output
 - ◆ IEC-60958 (SPDIF) digital audio output
 - ◆ 7.1 down-mix
 - ◆ MPEG I Layer 1, 2, 3 (2-CH) and MPEG II Layer 1, 2 (Multi-Channel)
- ◆ LPCM, ADPCM, FLAC, AAC, WAV, and OGG Vorbis
- ◆ DTS HD Master Audio, Low Bit Rate (LBR)
- ◆ Dolby[®] Digital Plus, TrueHD
- ◆ RA1/RA-cook/RA-lossless
- ◆ WMA/WMA Pro, Dolby[®] Digital AC3 and DTS[®] (Licensee Only)
- Video Interface
 - ◆ Two Parallel/Serial TS inputs for Digital TV systems
 - ◆ TV encoder with six 12-bit video D/A converters
 - ◆ NTSC and PAL TV systems
 - ◆ Composite analog video outputs
 - ◆ S-Video (Y/C) analog video outputs
 - ◆ Component (YPbPr or RGB) analog video output
 - ◆ Simultaneous Composite, S-Video, and YPbPr output
 - ◆ Simultaneous SD/HD output
 - ◆ VGA/XVGA/SVGA output
 - ◆ HDMI version 1.3 transmitter with CEC
 - ◆ Supports SCART output
 - ◆ 3D De-interlacer
 - ◆ Bitmap OSD
- Video and Picture Function
 - ◆ Supports 1 HD decoder
 - ◆ MPEG1, VCD 1.0/2.0, SVCD
 - ◆ Supports HD MPEG2 (up to MP@HL 1080p), ISO/IFO/VOB/TS

- ◆ Supports HD MPEG4 SP/ASP (720p/1080i/1080p), Xvid
- ◆ H.264 BP@L4.1, HP@L4.1
- ◆ WMV9/VC-1 AP@L3
- ◆ RealVideo 8/9/10, up to 1080@30P
- ◆ DivX3/4/5/6 (Licensee Only)
- ◆ AVS HD 1920x1080
- ◆ HD JPEG with unlimited resolution (40M-pixel tested)
- ◆ Full-pixel JPEG decode with high resolution zoom-in
- ◆ De-blocking/De-ringing Filter
- ◆ Video upscaling from SD to HD (720p/1080i/1080p)
- ◆ Supports 24/30/36-bit deep color
- Copy Protection
 - ◆ DeCSS
 - ◆ CGMS-A
 - ◆ HDCP
 - ◆ Microsoft DRM
 - ◆ Secure Boot with OTP and embedded boot-ROM

2.2. Software Features

- Operating System: Linux
- Media Browser and Player
- Supports Subtitles
- Photo slideshow with transition effects
- Network applications
- DTV function

3. System Applications

- HD Media Player
- Digital Media Adaptor/Server
- STB with PVR (Personal Video Recorder)
- Networked Media Module for Embedded CE devices

3.1. Application Diagram

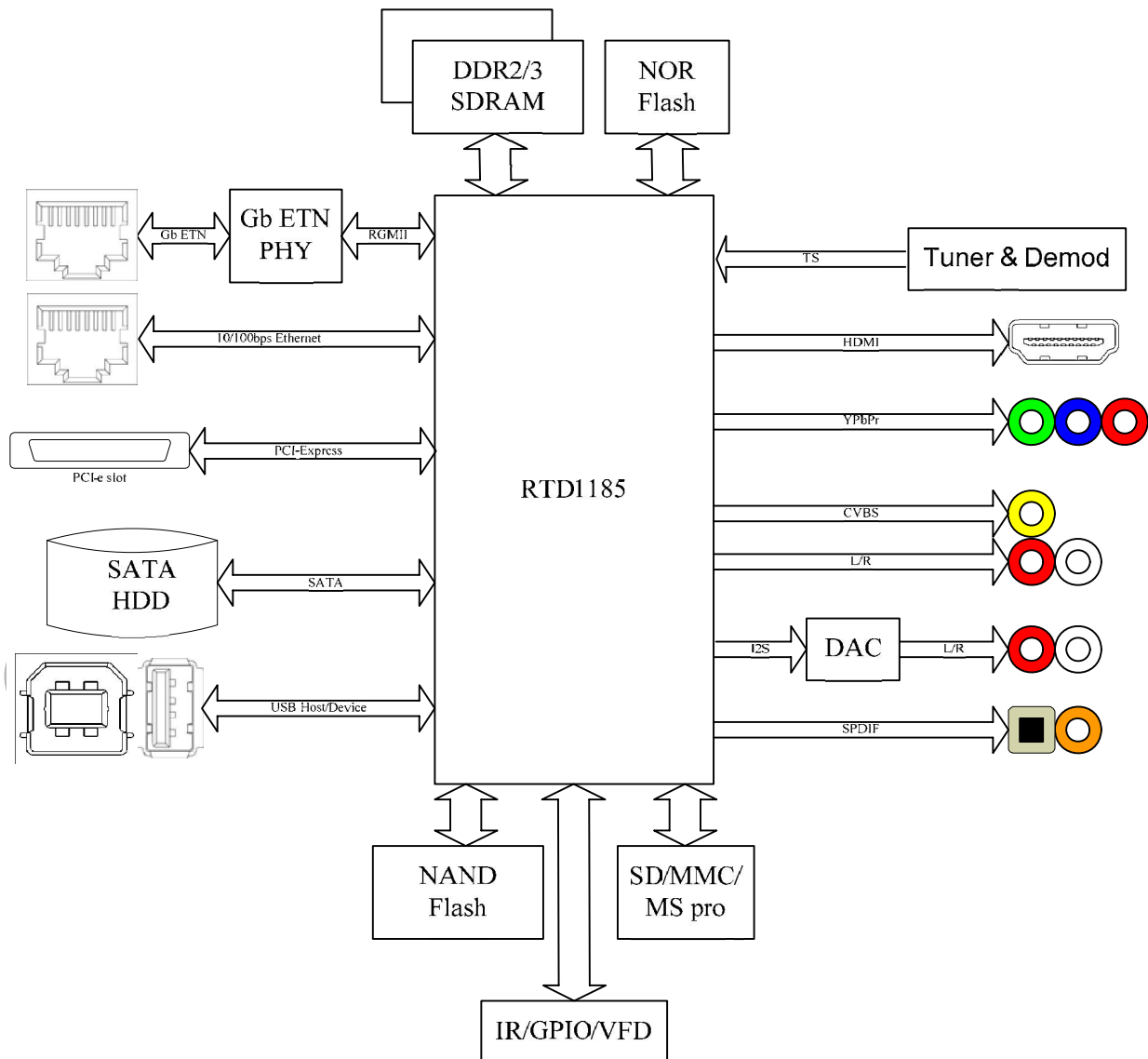


Figure 1. Application Diagram

4. Block Diagram

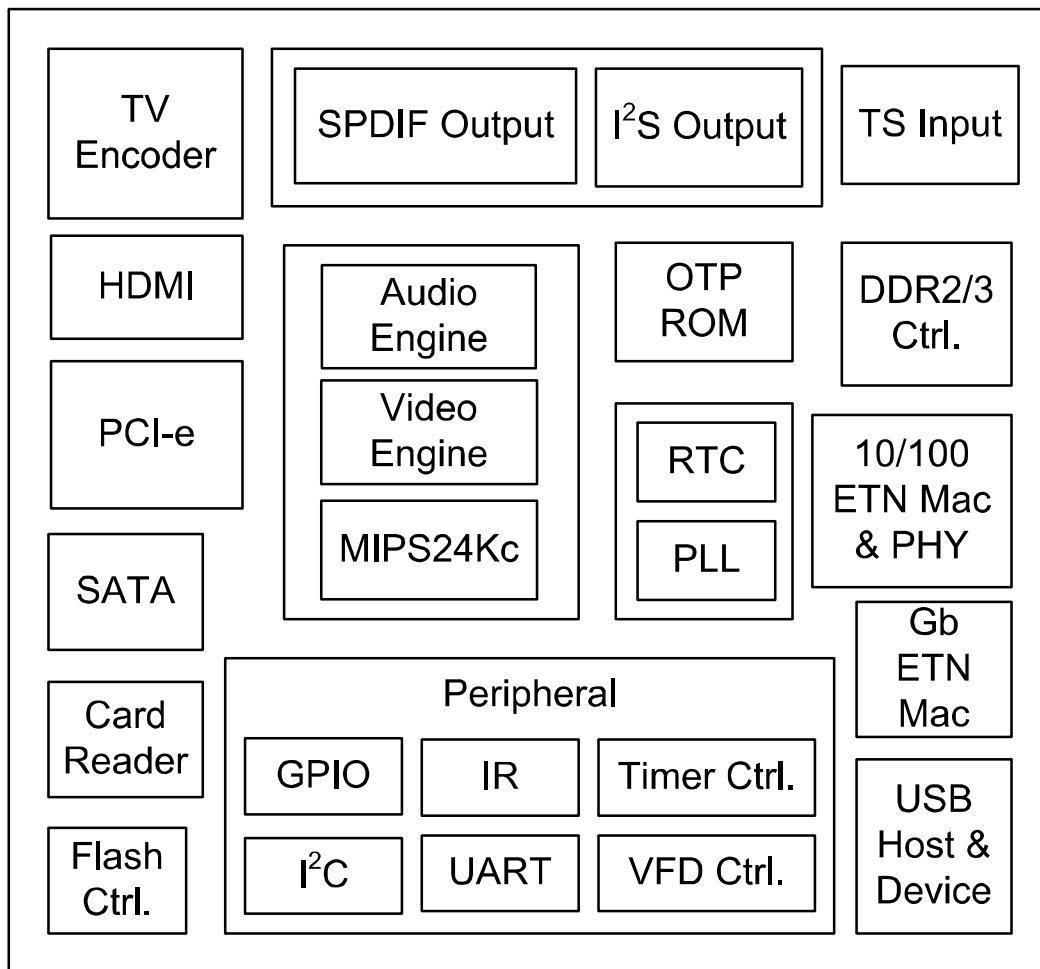


Figure 2. Block Diagram