MPEG-4 HD Single Chip iDTV IC
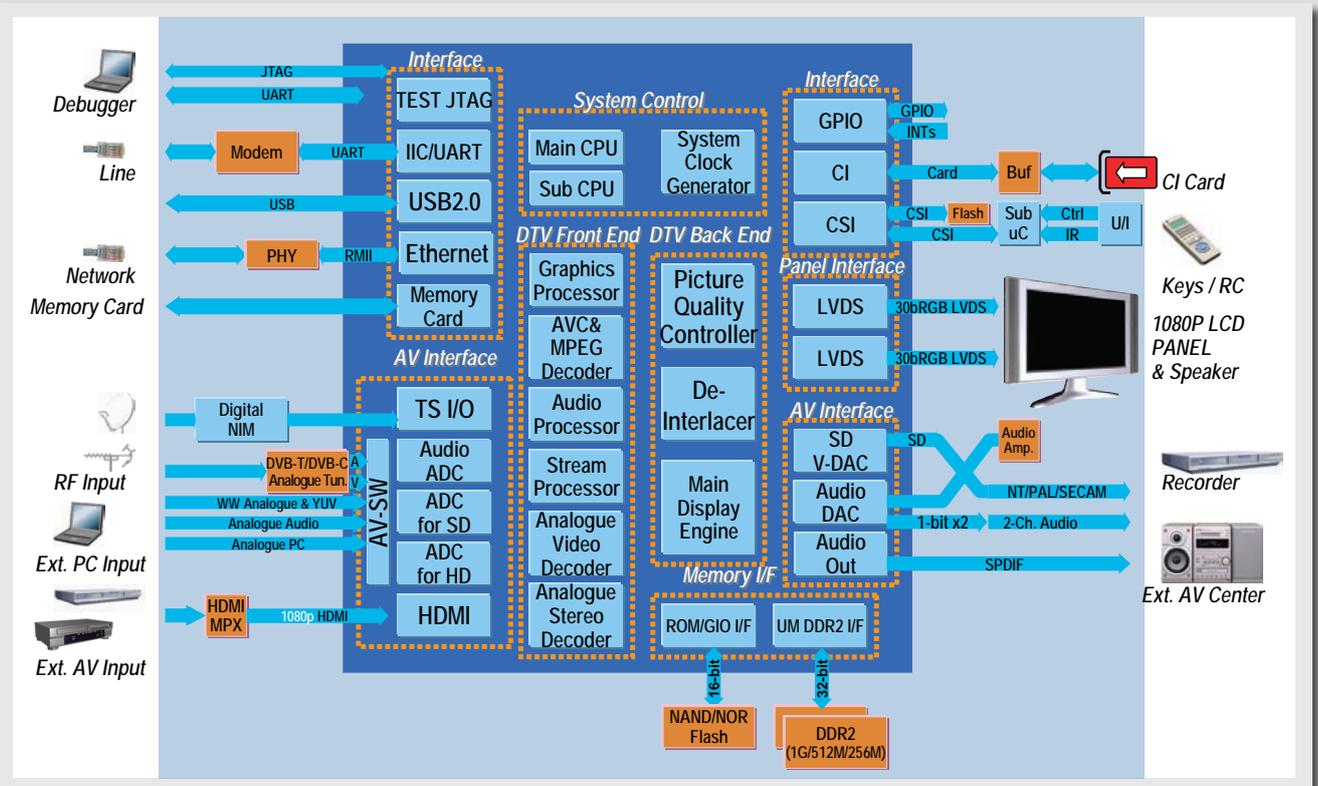
EMMA3TL

Based on the 3rd generation of Renesas Electronics' Enhanced Multimedia Architecture™ (EMMA™), the EMMA3TL single-chip solution is optimized for full HD digital televisions (HDTVs) with picture quality control (PQC). To reduce the number of components needed to build an HDTV, the EMMA3TL processor incorporates all of the audio/visual (A/V) peripherals and functions necessary to process HD images, graphics, and sounds.

The EMMA3TL IC can process High Definition MPEG-2, MPEG-4 and AVC (H.264) compression formats and offers very powerful processing power with two integrated MIPS32® 4KEc® CPUs in addition to a stream processor, audio processor, and graphics processor.

Enhanced MultiMedia Architecture
EMMA

Block Diagram

Key Features

- Main CPU MIPS32™ 4KEc™, Sub CPU MIPS32™ 4KEc™
- Unified memory using DDR2
- NOR and NAND FLASH supported
- Multiple AV inputs: Component up to WUXGA, RGB, CVBS, HDMI™, Sound I/F
- 3D Y/C analogue video processor and picture enhancement
- Analogue audio / NICAM sound processor
- High Definition MPEG-2/H.264/VC-1 video decoder with main and sub outputs
- High-performance graphics acceleration engine with two 32-bit high definition OSDs
- Full-HD 1080p resolution
- High performance deinterlacer
- On-chip Picture Quality Control (PQC) function supporting image quality adjustment for LCD panels
- LTI/CTI, 2D aperture, sharpness, APL adaptive black extension/white peak correction, contrast, hue correction, MATRIX conversion, V-T correction, LCD overdrive
- Dual LVDS output for 1080p with xvYCC color correction
- Multichannel stereo audio DACs integrated
- Ethernet, USB2.0, SD-Card

EMMA3TL feature list comparison with EMMA2TH/H

			EMMA3TL		
AV Input	Audio ADC			›	2-ch Audio ADC
	Video ADCs for HD			›	High-speed Video ADC
	3D Analog Video Dec	EMMA2TH/H		›	3D Comb Filter, CC/Teletext
	HDMI Rx			›	V1.3 Support with HDCP
DTV Core	Stream Processor			›	MPEG2-TS (DVB, ARIB, ATSC)
	MPEG Decoder			›	Single MPEG2 MP@HL Decode
	Audio Processor	EMMA2TH/H		›	HE-AAC, Dolby® Digital, MPEG
	Graphics Processor			›	Video & OSD
	Main CPU			›	MIPS32 4KEc
	Sub CPU			›	MIPS32 4KEc
	MPEG 4 AVC			›	MPEG 4 AVC (H.264)
AV out	Video DAC for SD	EMMA2TH/H		›	2-Video DAC for YC or CVBS
	Audio DAC			›	Audio DAC
B/E	Display Engine			›	Full HD
	PQC	EMMA2TH/H		›	PQC for Video & for Panel
	LVDS			›	Dual Link
I/F	USB2.0	NEC USB2.0		›	USB2.0 Core integrated
	Ethernet			›	Ethernet MAC integrated

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