

Grain Media GM8120 MPEG-4/JPEG SoC

MPEG-4/JPEG SoC Solution Targeting Digital Surveillance, DVR and Video Streaming Devices

VIDEO SOLUTION

Overview

The GM8120 SoC Platform is catered specifically for Internet digital video applications. The main thrust of GM8120 is the MPEG-4/JPEG/H.263 video codec hardware engine with a powerful and highly-integrated 240 megahertz (MHz) FA526 RISC processor containing an 8k I-cache and an 8k D-cache. The engine supports real-time MPEG-4 encoding/decoding with target applications such as Internet Surveillance Camera, Digital Video Recorder, Digital Media Adaptor, Portable Media Player, IP Set-Top Box, Media Gateway, Network Attached Storage, and TV Captured Card. The GM8120 takes image quality to a new level, while delivering D1/VGA streaming video up to 30 fps.

The GM8120 is capable of supporting CCIR input and output signals. The platform provides quick and easy PC attachment and Internet connectivity by offering industry standard interfaces with USB OTG and 802.3 MAC support. IDE and SD/MMC card controller are also supported to reduce the BOM cost for DVR or IP camera with storage feature. Moreover, PCI interface is supported for feature extension.

Easy-To-Use MPEG-4 Developing System and Software Design Kit

Grain Media also offers an MPEG-4/JPEG Multimedia Developing Platform named GM8120 IP Camera Starter Kit. The GM streaming media software IP camera solution, which includes the GSM server and GSM client player, is developed with RSTP/3GPP streaming network protocol to prove GM8120's performance and functionality. The well-verified GM8120 Linux SDK with all the necessary OS software design kit, all of the peripherals, and 802.11g Wireless LAN drivers ease the software design effort and reduce the entry barrier. Besides, Grain Media provides FA526-based Media Library like MP3/WMA/AAC/JPEG decoder, AV sync mechanism, and FFmpeg application software to help customers enter into multimedia application markets. The function blocks & their key features, and the design software kit are as follows:



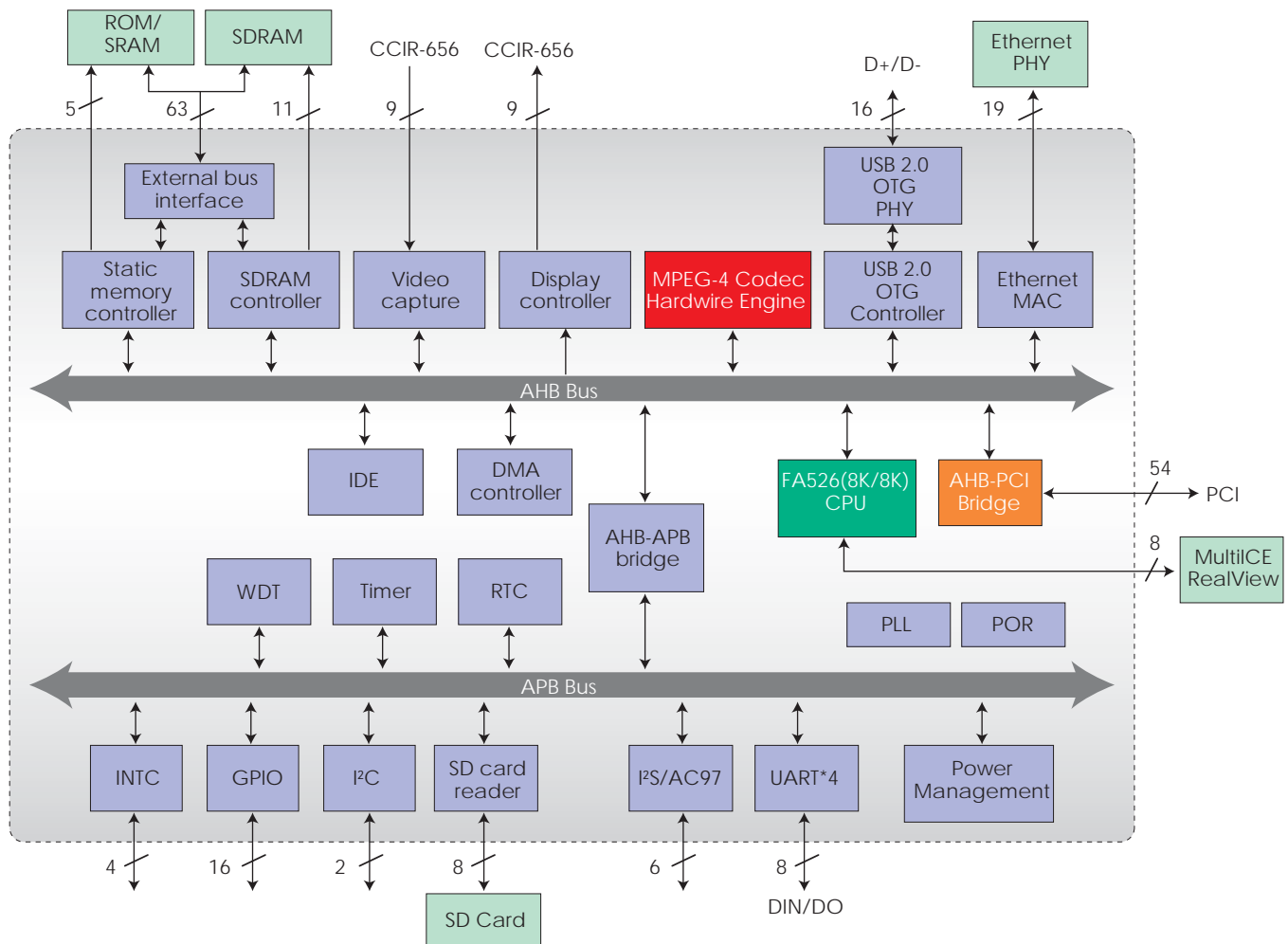
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The Highest Integrated MPEG-4 Codec SoC for Video-Over-Internet Application

CPU Core: The FA526 CPU core implements the ARMv4 architecture, which is well documented in the ARM Architecture Reference Manual, second edition. The FA526 core is a Harvard architecture design with an 8-stage pipeline consisting of fetch, instruction, decode, register, shift, execute memory, and writeback stages.

Block Diagram

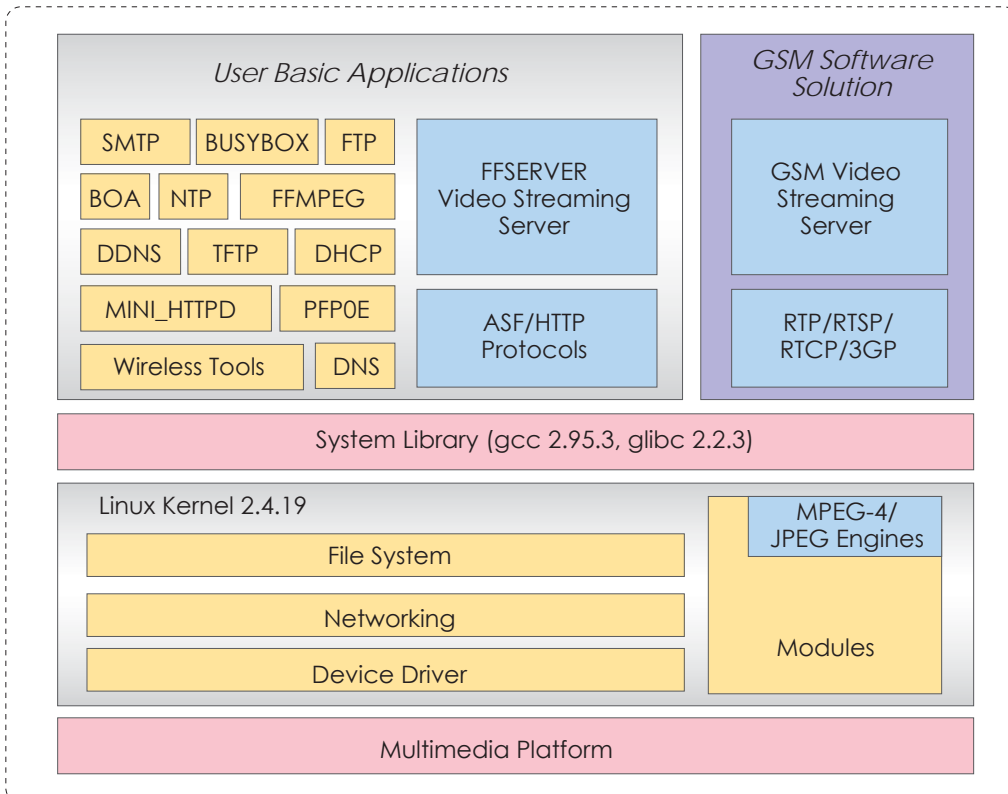




Key Features

CPU	FA526, 8K I-cache and 8K D-cache
MPEG-4 codec	Non-Duplex @ D1, 30 fps, Full-Duplex @ D1, 15 fps
Memory Interface	32-bit SDRAM and 16-bit SRAM/Flash (up to 4MB)
PCI Interface	Support 2-slot PCI masters, dedicated PCI-SDRAM AHB local memory bus
Peripherals	802.3 MAC, USB OTG, IDE, UART, I ² S, I ² C, GPIO (16-pin)
Video Capture	CCIR-601, 656 interface (support progressive & interlace)
Display Interface	CCIR601, CCIR656
Operating Voltage	1.8 V for core and 3.3 V for I/O
Operating Freq.	CPU up to 240 MHz, AHB up to 120 MHz and APB up to 60 MHz
Process	UMC 0.18 μm GII, 1P6M, 2G, pure logic
Package	256-pin TFBGA (17x17 mm ² , without PCI and IDE function), 352-pin LPBGA (19x19 mm ²), 353-pin PBGA (31x31 mm ²)

Software Architecture of GM8120



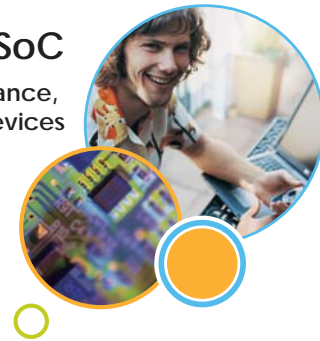
GM8120 Linux Streaming Media Software

Applications

- (Wireless LAN) Internet Surveillance Camera
- Digital Video Recorder
- (Wireless LAN) Digital Media Adaptor
- Portable Media Player
- (IP) Set-Top Box
- Media Gateway
- (Wireless LAN) Network Attached Storage
- TV Captured Card

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- **Basic Parts**
 - GM8120 main board for video streaming application
 - RS-232 cable for debug console
 - Power supply adapter
 - GM8120 Linux SDK (OS, Drivers, BSP)
- **Extension Parts**
 - FA5 ICE (USB Interface)
 - CMOS Sensor Module
 - LCD Module



GM8120 EVB

Availability & Pricing

- GM8120 EVB at \$15,000 USD is available now.
- GM8120 is available now. It is manufactured with UMC's 0.18 μm process and packaged in 256TFBGA/352 LFPGA/353-PBGA.

GSM IP Camera Software Design Kit

	Item	Status
1	GMPlayer windows video player	Available
2	GMSurviewer (1-/2-/4-/8-channel player)	Available
3	Fstreamer (Video Server AP)	Available
4	RTP over TCP/UDP streaming	Available
5	Multicast streaming support	Available
6	3GPP support	Available
7	Motion Dection alarm video	Available
8	ADPCM/MP2/AMR software codec	Available
9	IPTV user interface support	Available

Tool Chain

	Item	Description
1	arm-elf-gcc 2.95.3	GNU C compiler for embedded Linux
2	glibc 2.2.3	GNU C library for embedded Linux
3	binutil 2.11.2	GNU Binary image builder utility



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Flyer version no. GM-2007-10