Hi3520D H.264 codec processor

Product introduction

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Hi3520D H.264 codec processor

main feature

processor core

ÿ ARM Cortex A9 @Max. 660MHz
ÿ 32KB L1 I-Cache, 32KB L1 D-Cache
ÿ 128KB L2 Cache

Multi-protocol video codec ÿ H.264

Baseline/Main/High Profile Level4.2 codec ÿ MJPEG/JPEG Baseline codec Video
codec processing ÿ H.264&JPEG multi-stream codec

performance: ÿ

8xD1@6fps+8CIF@6fps Encoding + 8xD1@6fps decoding
+ JPEG D1 capture @16fps ÿ 8xCIF@30fps + 8QCIF@30fps encoding +
8xCIF@30fps decoding + JPEG
D1 capture @16fps ÿ 4xD1@30fps + 4CIF@30fps encoding + 4xD1@30fps decoding
+ JPEG capture D1 @8fps ÿ
4x960H@30fps+4CIF@30fps encoding+1x960H@30fps decoding+JPEG capture
960H@8fps

ÿ 8xD1@30fps H.264 decoding ÿ
4x720P@30fps H.264 decoding ÿ CBR/
VBR code rate control, 16Kbit/sÿ40Mbit/s ÿEncoding frame rate supports
1 fpsÿ60fps ÿSupports region of interest (ROI)
encodingÿ Provides color-to-gray encoding intelligent
video analysis ÿ Integrated

intelligent analysis

acceleration engine, supports intelligent motion detection, perimeter defense
Fan, video diagnosis and other intelligent analysis applications

Video and graphics processing

ÿSupports pre- and post-processing such as de-interlace, image enhancement, edge
enhancement, 3D
denoising, etc. ÿSupports video and graphics output anti-
flicker processing ÿSupports video 1/8~16x
scaling ÿSupports graphics 1/2~2x Scaling
ÿSupports 8 areas of pre-coding OSD overlay ÿVideo layer,
graphics layer Alpha overlay audio codec

ÿHardware

implements multi-protocol audio encoding, supporting ADPCM, G.711,
G.726
ÿSoftware implements multi-protocol audio codec

security engine

ÿHardware implements AES/DES/3DES encryption and decryption algorithms

Video interface

ÿVideo input interface ÿ
2xBT656@108/144MHz, supports 8CIF/8D1/8 x 960H real-time video input ÿ
2xBT656@148.5MHz,
supports 2x720P real-time video input ÿ 1xBT1120@148.5MHz, supports 1x1080p
real-time video input ÿVideo output interface ÿSupports HDMI 1.3+VGA +2xCVBS
multi-video output; HDMI and
VGA same source output

ÿ HDMI/VGA maximum resolution supports 1080P@60fps
ÿProvides three graphics layers, the formats are RGB1555 and RGB8888.
settings, the maximum resolution is 1920x1080
ÿ Provide a hardware mouse layer in the format of RGB1555, RGB8888
Configurable, maximum resolution is 128x128
ÿ CVBS0 and high-definition video PIP layer multiplex

audio interface

ÿ 2 standard I ^{2}S interface
ÿ 1 support input ÿ 1
support output

Network interface

ÿ 1 Ethernet interface ÿ Built-in
FE PHY ÿ You can choose
to use the MDI interface at the physical layer or the RMII interface at the MAC layer
mouth
ÿSupport 10 / 100Mbit/s ÿSupport
full-duplex or half-duplex mode peripheral

interfaceÿ 2

SATA2.5 interfaces ÿSupport PM
function ÿSupport eSATA
ÿ 4 UART interfaces ÿ 1
SPI interface, support 2 chip
selectsÿ IR interface, I 2C interface, GPIO interface ÿ
2 USB 2.0 HOST interfaces, support Hub function
memory interface ÿ 1 16bit DDR2/3 SDRAM controller interface ÿ

maximum frequency

660MHz ÿ support ODT function ÿ maximum capacity support 512MB
ÿ support automatic function
Consumption control ÿ SPI
Nor Flash interface ÿ 1, 2, 4bit SPI Nor
Flash ÿ 2 chip selects ÿ The
maximum capacity of each chip
select supports 32MBytes

ÿBuilt -in 4KB bootrom and 10KB SRAM

Independently powered

RTC ÿ RTC can be independently powered by
battery ÿ Built-in temperature
sensor ÿ RTC counting frequency can be automatically

corrected according to temperature

Multiple startup modes
configurable ÿ Bootrom startup ÿ SPI NOR flash startup

SDK

ÿProvide development kit based on Linux 3.0
ÿProvide H.264 high-performance PC decoding library

Chip physical specifications ÿ

Power consumption
ÿ 2.5W typical power consumption
ÿ Supports multi-level power consumption
control ÿ Working voltage

ÿ Core voltage is 1.25V
ÿ IO voltage is 3.3V
ÿ DDR2 /3 SDRAM interface voltage is 1.8/1.5V
ÿPackage
ÿ RoHS, Epad-LQFP256
ÿPin pitch: 0.4mm ÿ
28mmx28mm package size

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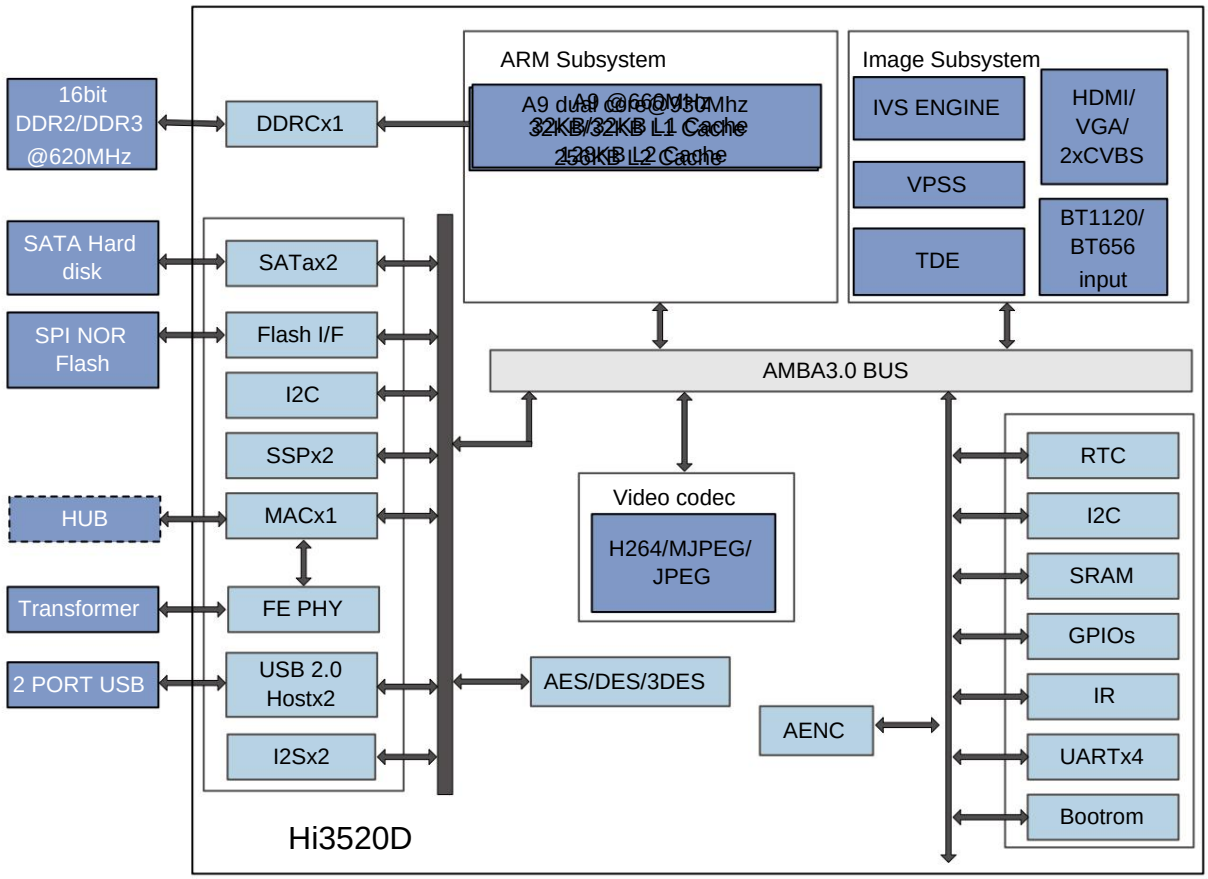
Functional block diagram



Hi3520D is a professional SOC chip developed for multi-channel D1 and multi-channel high-definition DVR and NVR product applications. Hi3520D has built-in high-performance A9 processor, up to 8

An engine with D1 multi-protocol encoding and decoding capabilities; integrating excellent video engines and encoding and decoding algorithms and combining multi-channel high-definition display output capabilities to fully meet the high requirements of customer products

Quality graphics experience. Hi3520D's highly integrated and rich peripheral interfaces not only meet customers' differentiated product function, performance, and image quality requirements, but also greatly reduce the cost.

Low ebom cost.

Single-chip **Hi3520D DVR** solution

Hi3520D single chip **4D1+4CIF encoding+4D1** decoding **DVR**

ÿ 4D1+4CIF dual stream real-time encoding + JPEG D1 capture @8fps +4D1 real-time decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs

Hi3520D single chip **4x960H+4CIF editing+1x960H** decoding **DVR**

ÿ 4x960H+4CIF encoding+1x960H real-time decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs

Hi3520D single chip **8xCIF+8QCIF encoding+8xCIF** decoding **DVR**

ÿ 8xCIF+8QCIF encoding + JPEG D1 capture @16fps +8xCIF real-time decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs

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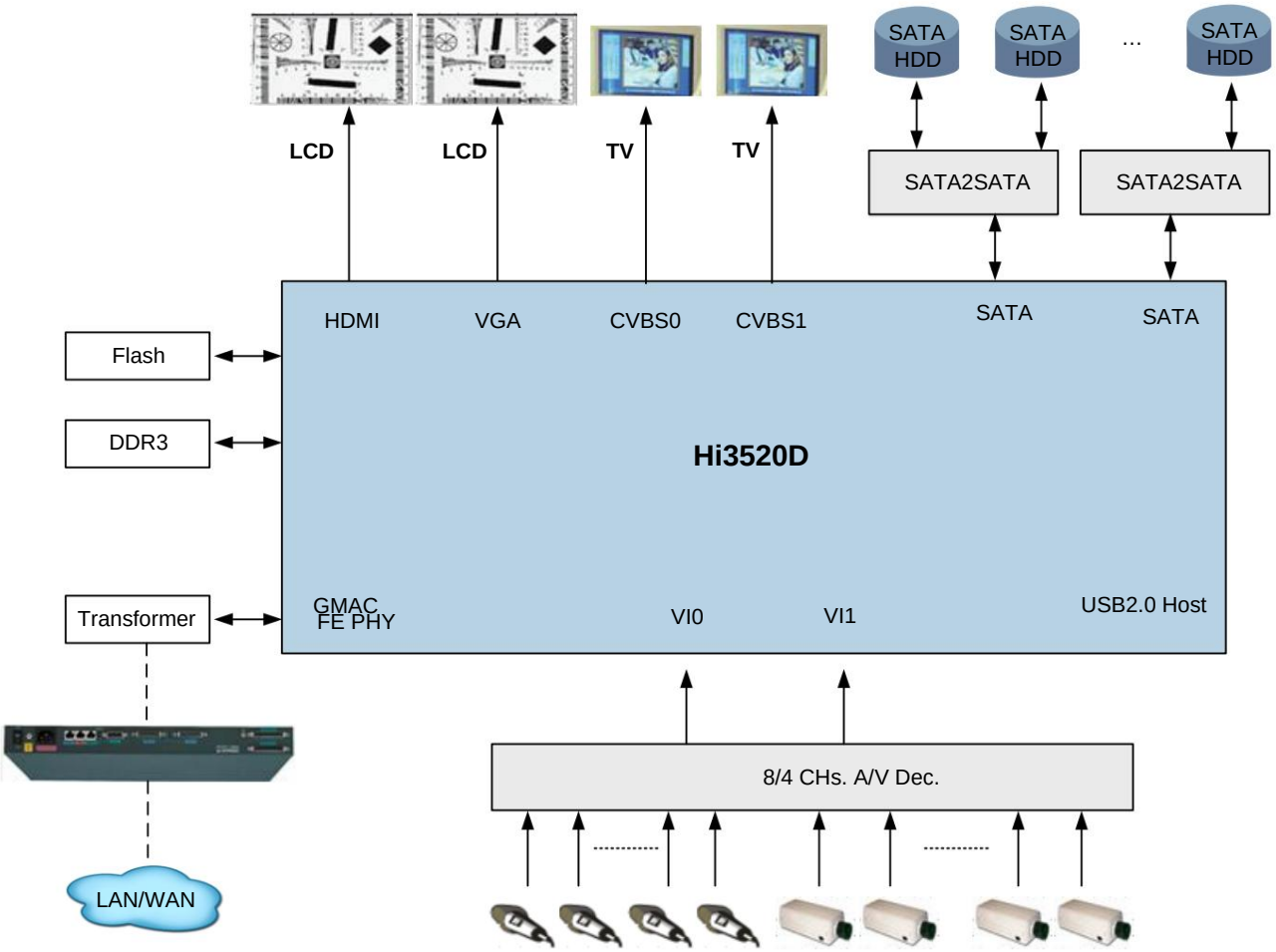
Hi3520D single-chip **8D1 encoding + 8CIF encoding + 1D1** decoding (non-real-time)

ÿ 8D1@6fps + 8CIF@6fps dual stream encoding + 1D1@6fps decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs



Single-chip **Hi3520D NVR** solution

Hi3520D single chip **8D1 NVR**

ÿ 8D1 real-time decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs

Hi3520D single chip **4x720p NVR**

ÿ 4-channel 720p real-time decoding

ÿ HDMI+VGA 1080P@60fps same source output + 2 CVBS outputs

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