System-On-Chip Technologies

PRODUCT BRIEF

SoM-I-SX660 Module

The SoM-SX660 Module now supports Intel FPGAs, enabling multiple channels for encoding, decoding, and transcoding, utilizing SOC's advanced MPEG-2, H.264, and H.265 IP Cores for video processing up to 8K with minimal latency.

This compact PCB comes pre-configured with the IP Cores and includes all necessary components for comprehensive video and audio processing.

Engineered for ultimate versatility, this complete plug-and-play unit streamlines your video processing needs, offering exceptional performance in one highly adaptable, integrated module.

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SOC SoM-I-SX660: Multi-Channel and Up to 8K Resolution Support

The SOC SoM-I-SX660 System-On-Module (SoM) is a compact, high-performance board powered by the Intel Arria-10 SX660 FPGA. Available in both commercial (SoM-I-SX660-C) and industrial (SoM-I-SX660-I) versions, this module is has a greater working temperature range and comes pre-configured with SOC's MPEG-2, H.264, and H.265 IP Cores for HD, 4K, and up to 8K video processing.

Versatile and powerful, the SoM-I-SX660 is ideal for a wide range of SoM applications with customizable firmware. SOC Technologies leverages this module for advanced video and audio codec applications using its advanced MPEG Codec IP Cores.

SoM-I-SX660 Key Features

- Arria-10 SX660 FPGA (with 2 ARM Cores)
- 4Gbits DDR3 RAM for FPGA logic
- 4Gbits DD3 RAM for the ARM Processors
- 256MB FLASH MEMORY(for booting firmware storage)
- 27MHz and 100MHz OSCILLATORS
- FPGA Firmware Key EEPROM
- COMMERCIAL & INDUSTRIAL VERSIONS
- SELF-CONTROLLED BOOTING SEQUENCE
- SMALL SIZE, 2.6”x 2.7”

SOC Codec Modules Based on SoM-I-SX660

SOC supplies a number of MPEG codec modules based on the SoM-I-SX660, which include encoder, decoder, and transcoder modules for both MPEG-2, H.264/AVC, and H.265/HEVC in addition to a-NET version that connects directly to an Ethernet PHY.

Features:

- Low Latency
- Low Power
- Easy to Integrate with User PCB
- Reference PCB Designs are available
- Technical Support available

Specifications:

- MPEG Standard: H.264/AVC or H.265/HEVC
- Profiles: High, Main, and Baseline 4:2:2 12
- Output bit rates: 1-800Mbps & above
- Video resolutions: Up to 4K
- Frame Rate: Up to 60fps
- Chroma Formats: 4:2:2 or 4:2:0
- Precision: 8 bits or 10 bits or 12 bits
- Stream format: Transport Stream, or UDP/IP over Ethernet
- Video format: RGB or YUV
- Zero Latency: 0.25ms for HD and 0.5ms for 4K
- Power Consumption: 2-8w
- Working Temperature: 0°C-100°C (Commercial Version)
  -40°C-100°C (Industrial Version)

Product Table (SOC CODEC Modules based on the SoM-I-SX660)

Specifications						
Standard	Profile	Resolution	Chroma	Precision	Frame Rate	Audio
MPEG-2 Encoder	Up to High	Up to 4K	4:2:0/4:2:2	8 bits	Up to 60fps	ACC or MPEG2-L2
MPEG-2 Decoder	Up to High	Up to 4K	4:2:0/4:2:2	8 bits	Up to 60fps	ACC or MPEG2-L2
H.264 Encoder	Up to High	Up to 8K	4:2:0/4:2:2	Up to 10 bits	30fps	ACC or MPEG2-L2
H.264 Decoder	Up to High	Up to 8K	4:2:0/4:2:2	Up to 10 bits	30fps	ACC or MPEG2-L2
H.265 Encoder	Main 10	Up to 4K	4:2:0/4:2:2	Up to 10 bits	60fps	ACC or MPEG2-L2
H.265 Decoder	Main 10	Up to 4K	4:2:0/4:2:2	Up to 10 bits	60fps	ACC or MPEG2-L2

Generic SoM Based on SoM-I-SX660

The SoM-X-SX660 is not just a powerful module—it's a versatile platform for innovation.

Use it as a generic System-on-Module (SoM) to develop your own custom firmware and create unique SoM products. Designed for seamless integration, the SoM-X-A200T connects to your carrier board using a standard 204-pin DDR3 SODIMM connector. With a range of compatible connectors readily available, you'll find everything you need to bring your vision to life.

Compatible connectors for the SOC SoM-X-A200T SoM:

- MM80-204B1-1
- MM80-204B1-E1
- AS0A621-U2SN-7F
- AS0A621-H2S6-7H

Enhance Your Development: Explore SOC's Firmware Development Platforms for the SoM-I-SX660

SOC offers a range of advanced development platforms, empowering you to effortlessly create custom firmware for the SoM-I-SX660.