

SoM-X-A200T Module (Commercial and Industrial Versions)

Product Description

The SOC **SoM-X-A200T** System-On-Module (SoM) is a small circuit board based on the Xilinx Artix-7 A200T FPGA. The SoM-X-A200T comes with two versions, commercial and industrial. The product codes for these versions are SoM-X-A200T-C for commercial temperature and SoM-X-A200T-I for industrial temperature. Both versions use a standard DDR3 SODIMM connector for connecting to the carrier board. The SoM-X-A200T can be used for any SoM applications with user firmware. SOC also provides firmware development platforms that allow the users to develop their own firmware for the SoM-X-A200T.

SOC Technologies uses the SoM-X-A200T for video/audio codec applications based on the SOC high-performance MPEG Codec IP Cores, including H.264 and MPEG2 encoders, decoders, and transcoder. Multiple channel modules are also available.

SoM-X-A200T Features

- Artix-7 XC7A200T FPGA
- 2X2Gbits DDR3 RAM
- BF512 DSP
- 256MB SD-RAM for the DSP
- 256MB Flash Memory (for booting firmware storage)
- 27MHz and 100MHz Oscillators
- FPGA Firmware Key EEPROM
- Commercial and Industrial Versions
- Self booting sequence (no power up sequencing required)
- Small size, 2.0"x 2.7".

SOC Codec Modules based on SoM-X-A200T

SOC supplies a number of MPEG codec modules based on the SoM-X-A200T, which include encoder, decoder, and transcoder modules. Details are provided in the Product Brief of "SOC MPEG Codec Modules based on the SoM-X-A200T".

Features of the SOC Codec Modules are:

- Zero Latency (0.25ms for HD Resolution)
- Low Power
- High Video Quality
- Easy to Integrate with User PCB
- Reference PCB Designs are available
- Technical Supports are available

SOC provides Evaluation Kits for the SOC Codec Modules which are plug-n-play circuit boards for testing/evaluating the performance of the codec modules. Refer to the Product Brief of SOC Codec Evaluation Kits or contact sales@soctechnologies.com for further information.

Generic SoM based on SoM-X-A200T

The SoM-X-A200T can also be used as a generic System-on-Module (SoM), which allows users to develop their own firmware to make SoM products.

The SoM-X-A200T connects to a user carrier board using a standard off-the-shelf 204 pin DDR3 SODIMM connector, as shown in the following Figure. A number of products are available on the market. The product codes of the compatible connectors are listed in the figure as well.



SoM-X-A200T top view



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

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

PCB Connectors for the SoM-X-A200T

SOC also supply a number of Product development platforms for users to develop the firmware for the SoM-X-A200T SoM. Refer to the Product Development Kit on the SOC website at www.soctechnologies.com/dev-kits for further details.

SOC MPEG Codec Modules based on SoM-X-A200T (Commercial and Industrial Versions)

Product Description

SOC Technologies supplies several MPEG Codec modules based on the SoM-X-A200T, which include video/audio encoders, decoders, and transcoders, for both H.264/AVC and MPEG-2 standard. Available codec modules are listed on the SOC website at www.soctechnologies.com/modules. A sample Product Table is shown below. The Product Code naming convention is shown in the chart at the bottom of this page.

The I/O's for the SOC Codec Modules based on the SoM-X-A200T are listed below:

Module Type	Input	Output
Encoder Module	YUV Video Data	TS Stream Data
Decoder Module	TS Stream Data	YUV Video Data
Transcoder Module	TS Stream Data	TS Stream Data

The SOC Codec Modules based on the SoM-X-A200T also have a – NET version which allows the modules to connect directly to an Ethernet PHY.

Codec Modules Specifications

- MPEG Standard: H.264 or MPEG2
- Profiles: High, Main, and Baseline
- Output bit rates: 1-800Mbps & above
- Video resolutions: Up to 1080i/p
- Frame Rate: Up to 60fps
- Chroma Formats: 4:2:2 or 4:2:0
- Precision: 8 bits or 10 bits
- Stream format: Transport Stream, or UDP/IP over Ethernet
- Video format: RGB or YUV
- Zero Latency: 0.25ms
- Power Consumption: 1-4w
- Working Temperature: 0°C-70°C (Commercial Version)
-40°C-85°C (Commercial Version)

Sample Product Table (SOC Codec Modules based on the SoM-X-A200T)

Product Code	Specifications						
	Standard	Profile	Resolution	Chroma	Precision	Frame Rate	Audio
EC-VA-H264-10b-60-1080-MD	H.264	up to High	up to 1080i/p	4:2:0/4:2:2	up to 10 bits	up to 60fps	AAC or MPEG2-L2
DC-VA-H264-10b-60-1080-MD	H.264	up to High	up to 1080i/p	4:2:0/4:2:2	up to 10 bits	up to 60fps	AAC or MPEG2-L2
EC-VA-MPEG2-8b-30-1080-MD	MPEG-2	up to High	up to 1080i/p	4:2:0/4:2:2	8 bits	up to 30fps	AAC or MPEG2-L2
DC-VA-MPEG2-8b-30-1080-MD	MPEG-2	up to High	up to 1080i/p	4:2:0/4:2:2	8 bits	up to 30fps	AAC or MPEG2-L2

SOC Product Code Naming Convention

