

# VIM302

PC104 Video Graphics Controller Card with StackPC expansion connector



## Features

- System-on-a-chip TMS320DM8186 (VLIW-processor C674X DSP; RISC-processor ARM cortex-A8; 3D-graphics accelerator SGX530)
- RAM: DDR3 SDRAM 1GB
- NAND Flash 256 MB for storing OS
- PCI-E BUS: Compatibility with the PCI-E 2.0 specification
- SATA interface: transfer rate up to 300 MB/sec
- USB interface: support of USB 1.1 (12 MB/sec), USB 2.0 (480 MB/sec)
- Operating temperature range: from -40°C to + 85°C
- Software compatibility: Open Source Linux

## Overview

VIM302 module represents a video graphics controller card implemented in the StackPC format. Module operation is possible in one of the two modes:

- Master mode: The module is operating as a standalone full-featured CPU module. Peripheral devices are connected to the module via StackPC.
- Slave mode: The module is a peripheral device for capturing and processing video streams. Using PCI-E x1 interface via StackPC it connects to any CPU module.
- The both modes make it possible in real time to receive 16x D1 video streams or 2x SDI streams, compress them by H.264 algorithm, determine motion in the frame, save the compressed information to the drive, broadcast the streams over Ethernet, display them using a local monitor. Depending on the frame motion, it is possible to change the parameters of video streams compression in order to decrease the amount of video data saved.

## Technical Specifications

### System-on-a-chip TMS320DM8186

- VLIW-processor C674x DSP (up to 1 GHz, type of commands – with fix point and floating point)
- RISC-processor ARM Cortex-A8 (up to 1.2 GHz)
- 3D-graphics accelerator SGX530
- High-Definition Video Processing Subsystem (HDVPSS)
- 3 programmable co-processors of high-definition video processing (HDVICP2), which are responsible for capturing, coding, decoding and analysis of several video streams, as well as supporting H.264, MPEG4, H263, VC1/RTV, AVS, RV10, ON2, JPEG, MPEG2, DIVX standards

### Memory

- RAM: DDR3 SDRAM 1 GB
- NAND flash 256 MB for storing OS
- SPI flash 16 MB for storing a boot loader
- Connector for microSD cards

### VGA and HDMI video outputs

### PCI-E bus

- Compatibility with the PCI-E 2.0 specification
- Support of Endpoint mode in the x1 mode (5,0 Gb/sec)
- Bus is routed to StackPC connector

### SATA interface

- Transfer rate up to 300 MB/sec
- Two channels are routed to StackPC connector

### Ethernet interface

- Transfer rate up to 10/100/1000 Mb/sec
- Two channels are routed to StackPC connector

### USB interface

- Support of USB 1.1 (12 Mb/sec), USB 2.0 (480 Mb/sec)
- Two channels are routed to StackPC connector

### UART, SPI and I2C interfaces are routed to StackPC connector

### Video input

- Two 16-bit video ports

### Audio input

- Two I<sup>2</sup>S audio ports

### Real-Time Clock

- External battery input is routed to StackPC connector

### Digital I/O

- 18x programmable I/O lines on additional connector (3.3 V, 8 mA)

### Power supply and power consumption

- +5 V, no more than 15 W

### Humidity

- Up to 80%, no condensation

### Resistance to vibration/single shocks

- 5g/100g

### Operating temperature range

- From -40°C to + 85°C

### MTBF

- No less than 18,000 hours.

### Module size

- 115 x 96 x 28 mm (including heat-spreading plate and racks)

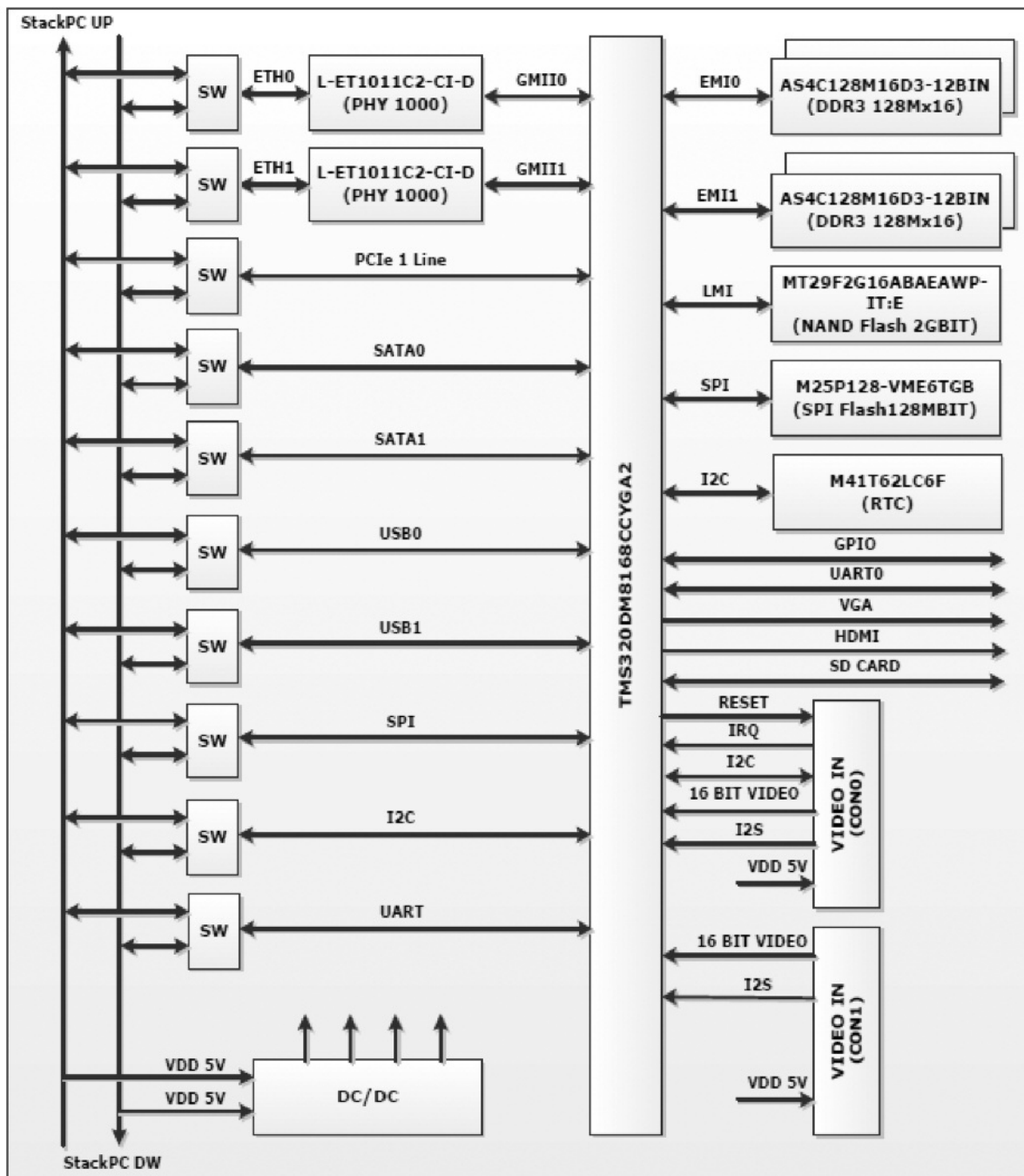
### Software compatibility

- Open Source Linux

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## Board Layout



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## VIM302 Video Processor Codec Modules

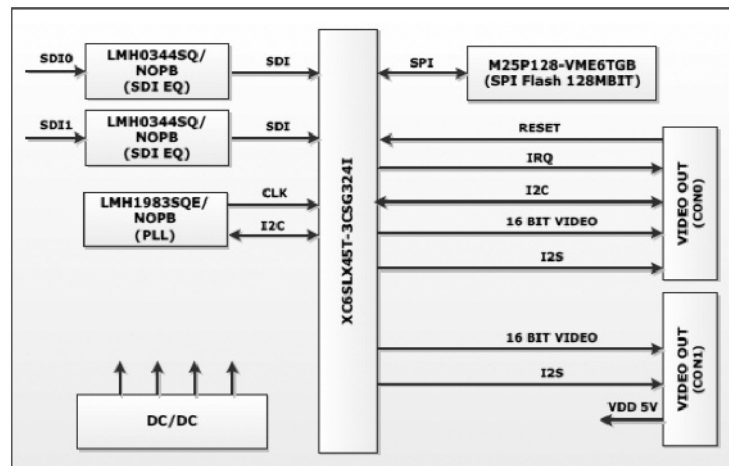
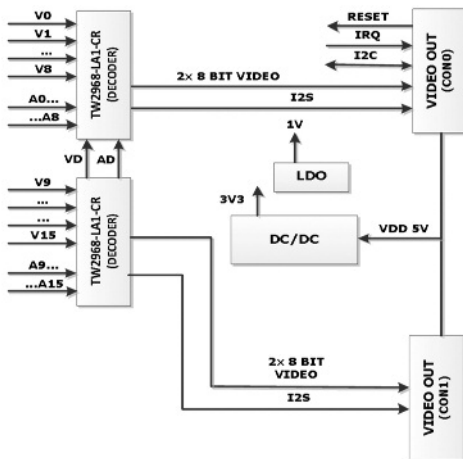
For processing video protocols, VIM302 is connected to MIC1006 and MIC1007 codec modules

### MIC1006 module has the following features:

- 16 video inputs
  - Resolution up to D1 (720x576)
  - H.264/MJPEG/RAW encoding
  - Frame frequency per channel 30/25 (NTSC/PAL) for resolution D1
  - Control of CBR and VBR streams
- 8x audio inputs with a resolution up to 16 bit and up to 44 KHz

### MIC1007 module has the following features:

- 2x video inputs
  - Input format SD-SDI/HD-SDI/3G-SDI
  - Resolution per channel up to 1920x1080 (FHD 1080p)
  - H.264/MJPEG/RAW encoding
  - Frame frequency per channel: up to 60
  - Control of CBR, VBR and ABR streams
- 2x audio inputs with a resolution up to 16 bit and sampling frequency up to 44 KHz



## Ordering Information

## VIM302 Configuration

### VIM302 - 01

#### Configurations

VIM302-01 PC104 Video Graphics Controller Card with StackPC expansion connector, DDR3 SDRAM 1 GB, NAND flash 256 MB for storing OS, connector for microSD cards, VGA and HDMI video outputs, PCI-E bus, SATA interface (transfer rate up to 300 MB/sec), Resistance to vibration/single shocks (5g/100g), Operating temperature range: -40°C...+85°C

#### Delivery checklist

VIM302 delivery checklist contains:

1. VIM302 module
2. Antistatic bag
3. Package

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Product specifications are subject to change without notice

## Corporate Offices

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