# ESMC-MTI01 SMARC Module for Low Power or Small Form Factor Designs

## High performance in a small and low power COM module

| | |
|---|---|
| Processor | TI Sitara AM5728 Dual-Core Cortex A15 1.5 GHz, 2MB L2 |
| DSP | 2x C66x DSP 750MHz (Max.) |
| Memory | 2GB DDR3L on board |
| Flash | 4GB eMMC NAND Flash |
| Board interface | SMARC 2.0 |
| Graphics | Dual-Core PowerVR SGX544 3D GPU , Vivante GC320 2D Engine |
| Display Support | 1x 24bit LCD, 1x HDMI 1.4a up to 1920x1200 resolution |
| Camera Interface | 2x Parallel interface (TI Camera Module TMDSCM572x)<br>- 1x SMARC<br>- 1x Expansion |
| Ethernet | 10/100/1000 Mbps x 2<br>- 1 x SMARC<br>- 1 x Expansion |
| WLAN/Bluetooth | Bulit in 802.11 a/b/g/n + Bluetooth 4.0 (Option) |
| Operating System | Linux Kernel 4.4.41 BSP Support |
| **SMARC I/O** | |
| PCIe | 1 |
| SATA | 1x SATA-II (3Gbps) |
| USB3.0/USB2.0 | 1 |
| CAN/SPI/$I^2C$ | 2/2/1 |
| GPIO | 9 |
| UART | 4 |
| eMMC/SD/SDIO | 1 |
| RTC | 1 |
| Power | 13W |
| Temperature | Operating 0 ~ 55°C (32 ~ 131°F) |
| Dimensions | 82mm x 82mm (3.23” x 3.23”) |

The AM5728 offers high processing performance through a fully integrated mixed processing solution by combining a programmable video processing engine with a highly integrated peripheral set. Cryptographic acceleration is available in the AM5728. The combined features are excellent for applications such as casino gaming, HMI, machine vision, PLC and motion control, industrial communications, and IOT applications.

**Processor:** Dual ARM® Cortex®-A15 Microprocessor with 2MB L2 cache with two C66x™ Floating-Point VLIW DSPs. It is fully Object-Code Compatible With C67x and C64x+.

**DSP Performance:** Up to Thirty-two 16 × 16-Bit Fixed-Point Multiplies per Cycle operating at 750 MHz.

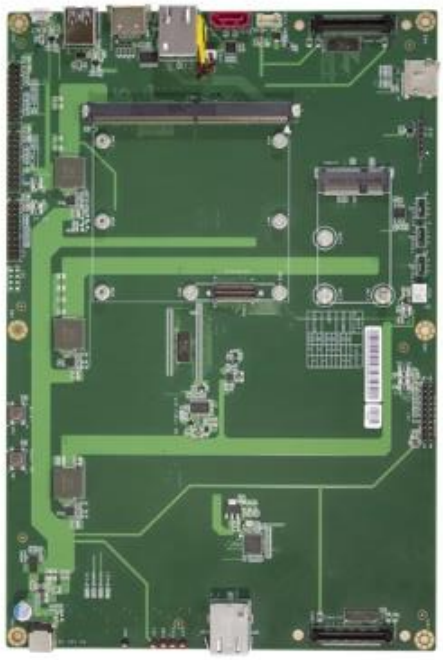
**3D Compatibility:** The Dual-Core PowerVR® SGX544™ 3D GPU is a modern and high performance GPU core capable of exceeding both OpenGL ES 2.0 and DirectX9.3 requirements. It is a member of the Series5XTMP GPU cores, which are the most popular GPU in the mobile and embedded market today making it ideal for display centric applications. Hardware support for desktop OpenGL 2.1 and OpenCL 1.1 Embedded Profile (May require additional software development and/or validation testing).



Harmony Technical Associates, Inc. – 1112 Oakridge Dr, #104-293, Fort Collins, CO – Tel: +1 (970) 300-3430
http://www.HarmonyTechnical.com

**SMARC Form Factor:** SMARC ('Smart Mobility ARChitecture') is a specification published by the Standardization Group for Embedded Technologies and it integrates the core functions of a bootable computer and additional support circuitry including DRAM, flash, power distribution, display and I/O into a Computer on Module (COM). Deployed together with an easy to design application-specific carrier board, whose I/O and form factor can be designed to meet application-specific requirements.

| | |
|---|---|
| Module Support | SMARC V2.0 COM Module |
| Display Outputs | 1 x 24bit RGB LCD connector (800 x 480 LCD capacitive touch support)<br>1x HDMI |
| Ethernet | 2 RJ-45 |
| Camera Module Interface | 2 |
| PCIe | 1x MiniPCIe |
| SATA | 1x SATA-II (3Gbps) |
| USB3.0/USB2.0 | 1x Type A/1x micro USB type AB |
| CAN | 2 pin header |
| SPI | 3 pin header |
| $I^2C$ | 1 pin header |
| GPIO | 9 pin header |
| UART | 4 pin header |
| microSD card slot | 1 |
| Power | 12V DC Jack |
| Temperature | Operating 0 ~ 55°C (32 ~ 131°F) |
| Dimensions | 270mm x 180mm (10.6" x 7.1") |
| Certification | CE/FCC |



**ESMC-CTI01-EVM SMARC Carrier Board:** Also available is the ESMC-CTI01-EVM Carrier Board. It is generally used for evaluation and development when using the SMARC module by breaking out specific connectors and capabilities to facilitate testing and development.





Harmony Technical Associates, Inc. – 1112 Oakridge Dr, #104-293, Fort Collins, CO – Tel: +1 (970) 300-3430
http://www.HarmonyTechnical.com