



Avionic Design

Embedded Tegra[®] K1 Processor Module

computer on a module feat. NVIDIA[®] Tegra[®] K1

1477-101-000

abstract

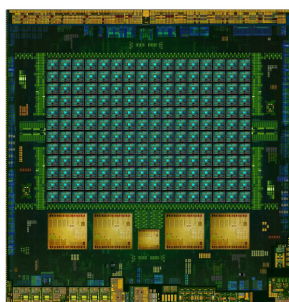
The Tegra® K1 processor module is the first low power and high performance multimedia platform on the market prepared for demanding embedded and avionic feat. 4K2K content and mobile embedded CUDA.

Based on the NVIDIA® Tegra® K1, it was designed with maximum reliability and flexibility in mind, yet it is very cost effective.

The processor-boards are manufactured in a tightly controlled process, complying with most rigorous quality assurance requirements from our avionic industry OEM partners.

features

- **Extremely Space Efficient:**
 - Size: 70mm x 50mm
 - Height (only components): 4.7mm (+/- 0.3mm)
 - Total standoff (incl. carrier-board connectors): 6.6mm (+/- 0.3mm)
- **Key Components On-Board:**
 - RAM: 2GByte DDR3 (1866MHz)
 - Mass Storage: 16GB eMMC
 - Ultra-compact, yet comprehensive PMU design
 - NVIDIA® Tegra® K1 SoC
- **Ultra Performance Tegra® K1**



GPU	
NVIDIA® Kepler™ Architecture	192 NVIDIA® CUDA® Cores
Standards	OpenGL 4.4
Maximum Clock Speed	up to 450MHz
CPU	
CPU Cores and Architecture	NVIDIA® 4-Plus-1™ Quad-Core ARM Cortex-A15 „r3“
Maximum Clock Speed	up to 2.2GHz
Package	
Process	28nm

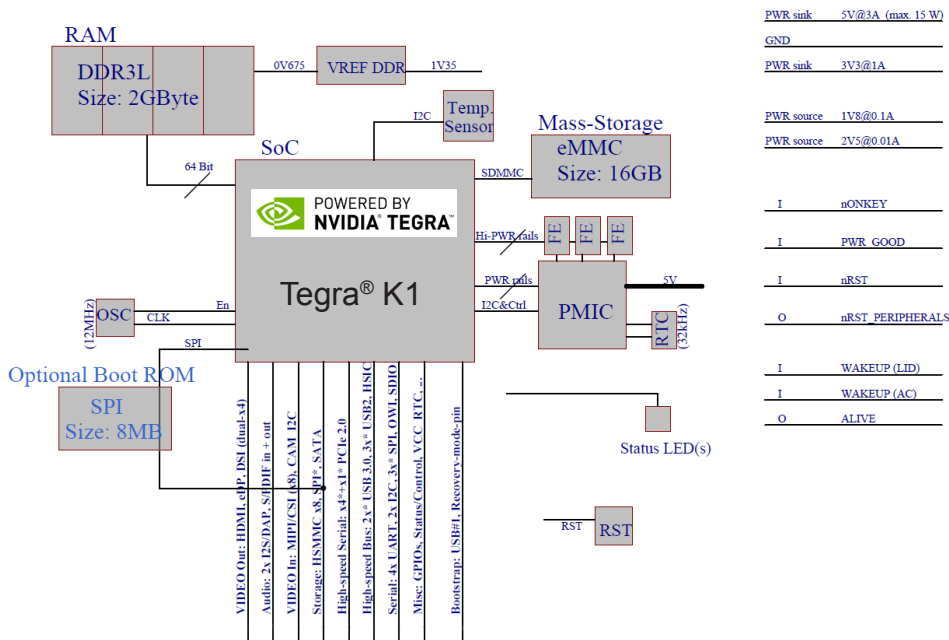
- **Low Power / Highest Performance per Watt:**
 - Power Supply: 3.3V & 5V
 - Power Consumption: 5-15¹ Watts
(depending on SDP/use-case and required performance)
 - Peak Performance: >300GFLOPS GPU based
 - Operating Ambient²: 0-70°C
 - Operating Duty: 24/7
- **Engineering Samples Q4/2014**
- **Mass Production Q1/2015**

availability

¹ Max. peak power consumption (short term) - power consumption depends on use-case

² Extended temperature range available starting in 2015

board overview



- **Video In**
 - CSI (Two x4)³
- **Video Out**
 - HDMI (1.4b)
 - eDP
 - DSI (Two x4)³
- **Audio**
 - 2x I2S
 - S/PDIF In, S/PDIF Out
- **Storage**
 - SATA
 - SDMMC
- **High Speed IO**
 - PCIe2.0 (x1), PCIe2.0 (x4)³
 - 2x USB 3.0, 2x USB 2.0 Host, 1x USB 2.0 Client³
 - SDIO
 - HSIC
- **Regular IO**
 - 3x I2C
 - up to 4x SPI (multiple CS)
 - OWR
 - up to 4x UART
 - JTAG + Debug UART
 - numerous shared and dedicated GPIO @ 3.3V and 1.8V

³ NOTE: Some interfaces shared. Please verify with Avionic Design technical sales if your specific usecase can be supported.

interfaces



company information

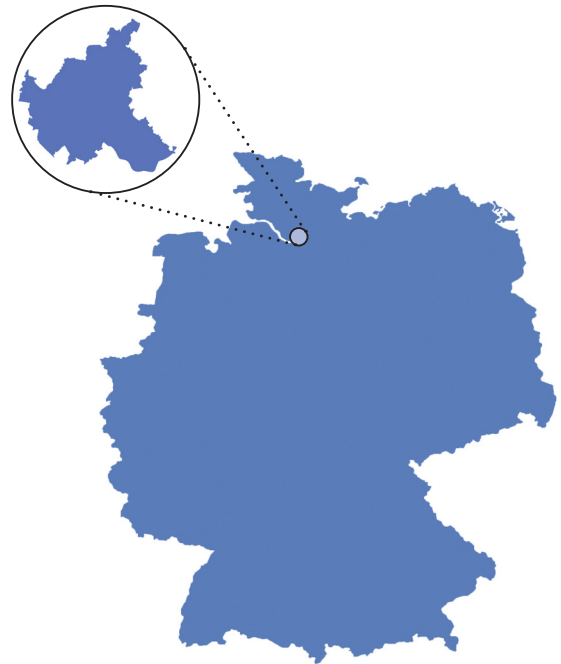
- founded 2001
- 60 employees
- 15 development engineers
- 575 m² office space
- 800 m² production area

address

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All information and technical specifications are subject to change without notice.

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