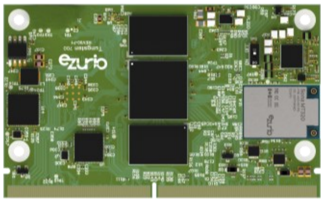
Tungsten700
Genio 700 + Wi-Fi 6 + Bluetooth 5.4
SMARC 2.1.1 Form Factor

Powerful, Standardized, and Connected Processing: Cutting Edge MediaTek IoT Processing with Wi-Fi 6 & Bluetooth 5.4

Our customers asked for cutting edge, high performance, robust SOM that simplifies their BOM, has reliable connectivity, uses a standard form factor, and is globally certified. One with multiple software options, next generation performance, advanced multimedia, and dedicated AI capabilities.

Our new Tungsten700 is powered by **MediaTek's Genio 700** processor and our Sona™ MT320 Wi-Fi 6 / Bluetooth 5.4 radio based on **MediaTek's Filogic 320 (MT7921)**, high performance LPDDR4 RAM, and eMMC storage. In combination with our universal SMARC carrier board, they are a single board computer (SBC) that can speed your product to market. Alternately, work with us to create a custom carrier that fits your mechanical, environmental, temperature, and interface requirements.

- **Powerful Arm DynamIQ big.LITTLE Multiprocessing: Dual-core 2.2 GHz Cortex-A78** and **hexa-core 2.0 GHz Cortex-A55** balances power efficiency via the *little* A55 cores with the peak computing performance provided by the *big* A78 cores.
- **High Performance Graphics and Display** powered by **Arm Mali-G57 MC3 GPU** and dual display outputs supporting 4K30 / 4K60 resolution, allowing for smartphone and tablet class UIs and 3D performance.
- 4K Video Encoder and Decoder with encoding support for 4K30 in HEVC/H.264 and decoding of up to 4K75 in HEVC/H.264/AV1/VP9.
- **Tensilica HiFi 5 Audio DSP** for efficient audio codec / voice processing.
- **Dedicated MediaTek AI Accelerator:** High-performance edge machine learning via an integrated NPU, delivering up to 4.0 TOPS.
- **Advanced Vision Pipeline:** multiple MIPI-CSI, onboard **image signal processor** (up to **32MP @ 30 fps)** for functions like electronic image stabilization and HDR fusion, and a Tensilica **VP6 vision processing unit** capable of face detection, object identification, scene analysis, optical character recognition, and more.
- **Diversity of Interfaces:** Multiple display, network, data, audio, camera.
- Optional **Wi-Fi 6** (802.11ax) and **Bluetooth 5.4** Classic & LE



- **SMARC 2.1.1 Standard Form Factor: 82mm x 50mm** SMARC edge connector form factor including **onboard ethernet PHYs and a USB hub controller**. One design supports multiple processor, memory, and wireless configurations.
- **Hardware Upgrade Roadmap:** Build a design that can easily be upgraded to the latest processors and wireless as our future SMARC SOMs are released.
- **Advanced Common Carrier/Development Board:** Display, camera, audio, Ethernet, USB, PCI-Express, CAN, I2C, SPI, UART, more. Use in development, as an SBC in a product, or as reference designs for your carrier board design.
- **Operating Temp**: Commercial (0° to +70 °C) or Industrial (-40° to +85 °C)
- Multiple high performance memory options:

4GB LPDDR4 / 16GB eMMC
8GB LPDDR4 / 16GB eMMC

- Extensive range of **pre-certified antennas** for Sona MT320
- **US based manufacturing with Global Options:** Assembled in USA for local customers / US market needs. Global manufacturing growing to EMEA & APAC
- Diverse Software and Board Support: Yocto Linux, Ubuntu, or Android.
- **Power Efficient:** Genio 700 uses leading 6nm equivalent production process and combined with a MediaTek PMIC, power optimized LPDDR4 and eMMC memory, core shut off, clock/voltage scaling, low power interfaces, power optimized Wi-Fi and Bluetooth enable highly optimized power consumption.
- **Long term hardware availability and software support:** Ezurio's products are specifically designed to meet the needs of the industrial and markets, which typically require 10 year or more product lifecycles.

Key Features

Powerful, Efficient General Purpose Embedded Computing

2.2 GHz dual-core Cortex-A78 and hexa-core 2.0 GHz Cortex-A55 allows for balancing power efficiency with the availability of peak computing performance.

AI, Graphics, Video, Vision, and Audio – Up to 2 Displays

4.0 TOPS AI/Machine Learning Processing Unit, dual 4K60 and 4K30 displays, smartphone class Arm Mali-G57 MC3 GPU, multi codec 4K30 encode and 4K75 decode video, 2 MIPI-CSI camera interfaces, dedicated Image Signal Processing up to 32MP, HiFi 5 audio DSP.

Reliable Connectivity: Wi-Fi 6 and BT 5.4

Excellent Wi-Fi and BT Classic / LE connectivity in difficult environments, plus enterprise Wi-Fi support via WPA3-Enterprise for more secure and robust connections.

Robust Software and Speed to Market

Choose from Yocto Linux, Ubuntu, or Android.

Global Radio Approvals

Carries several modular FCC, IC, CE, and Bluetooth SIG approvals.

Personal Support from Design to Manufacture

Our industry-renowned support and field application engineering team is passionate about helping you speed your design to market.

Application Areas

- **Smart Camera**
- **Industrial Tablets and Handhelds**
- **Industrial IoT, Vision Systems**
- **Smart Fitness Equipment**
- **Autonomous / Automated Robots and Vehicles**
- **Smart Signage and Retail POS**

https://www.ezurio.com/

Interested in our Tungsten700 SMARC?
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Specifications

Category	Feature	Specification	
Processors	Microprocessor	2x Cortex-A78 @ up to 2.2 GHz and 6x Cortex-A55 @ up to 2.0 GHz	
	Vision	Tensilica VP6 Vision Processing Unit	
	Audio	Tensilica® HiFi 4 DSP	
	Graphics	Arm Mali-G57 MC3 GPU up to 950 MHz	
	Machine Learning	AI Accelerator with up to 3.7 TOP/s	
Memory	RAM	4GB and 8GB. *(For custom sizes, please contact Sales)*	
	Storage	16GB. *(For custom sizes, please contact Sales)*	
Machine Learning	AI Processing Accelerator	• Fix 8 × Fix 8: 4.0 TOPS • Fix 16 × Fix 8: 2.0 TOPS	• Fix 16 × Fix 16: 1.0 TOPS • FP 16/BF 16: 1.0 TOPS
Graphics and Video	Graphics Processing Unit	• OpenGL ES 1.1, 2.0, and 3.2 • Vulkan 1.0 and 1.1	• 2D acceleration • OpenCL 1.0, 1.1, 1.2, 2.0, 2.1, 2.2
	Video Processing Unit	**Video Decode** • 4K75 HEVC/H.265 Main, Main 10 (up to level 5.1) • 4K75 AV1 Main profile (up to level 5.1) • 4K75 VP9 Profile 0 / 2 • 4K75 H.264 Baseline, Main, High, High 10 profile • 1080p60 H.263 Baseline profile • 1080p60 VP8 • 1080p60 MPEG-2 Main profile • 1080p60 MPEG-4 Simple, Advanced Simple Profile • HEIF Main, Main 10 profile up to 16383 × 16383	**Video Encode** • 4K30 H.264 encoder • 4K30 HEVC/H.265 encoder
	Display Interfaces	• 2x 4-lane MIPI DSI, throughput up to 1.2 Gbps per data lane • 1x Embedded DisplayPort, up to 1920x1410@60Hz	• 1x HDMI 2.0a Tx, up to 4K60 • 1x DisplayPort, up to 4K60
Vision	Camera	2x 4-lane MIPI CSI	
	Image Signal Processor	• Single camera: 32MP @ 30fps • Dual camera: 16MP + 16MP @ 30fps • Video High Dynamic Range (HDR) with stagger HDR sensor: up to 16 MP at 30 fps	
Audio	Audio Interfaces	2x I2S	
Peripherals	Input/Output	• 1x PCIe Gen2 1-Lane Dual Mode with PHY • 2x USB 3.0/2.0 Host • 2x USB 2.0 Host • 1x USB 2.0 OTG • 2x Gbit Ethernet	• 3x UART • 5x I2C • 3x SPI • 1x SDIO 3.0/eMMC 5.1 • 14x GPIO
Wireless Specification	Wi-Fi	Wi-Fi 6 (802.11ax)	
	Frequency	Dual-Band 2.4GHz & 5GHz	
	Bluetooth	Bluetooth 5.4	
	Transmit Power	+ 18 dBm (maximum)	
	Antenna Options	MHF4 connector for external antenna	
	Raw Data Rates (Air)	Wi-Fi 6 1020.8 Mbit/s – MCS11, 2 spatial streams, 80MHz, 1024-QAM, SGI	
Key Wi-Fi Features	Wi-Fi 6 (802.11ax)	• IEEE 802.11 a/b/g/n/ac/ax • 20, 40 & 80MHz bandwidth support	• OFDMA
Key Bluetooth Features	Bluetooth Version	• Classic Bluetooth – BR / EDR • Central / Peripheral Modes	LE Secure Connections
Supply Voltage		5 V	
Physical	Dimensions	SMARC 2.1.1 Standard - 82mm x 50mm	
Environmental	Temp Range	0°C to +70°C (Commercial) and -40° to +85 °C (Industrial)	
Miscellaneous	Lead Free	Lead-free and RoHS-compliant	
	Carrier Board	Carrier board, accessories, and evaluation software	
Qualifications	Bluetooth® SIG	Bluetooth SIG Qualified Listing	

Ordering Information

Part	Description
T700_SMARC_SOM_4r16e	Tungsten700 SMARC SOM: Genio 700 / 4GB / 16GB eMMC / 0 to +70°C
T700_SMARC_SOM_8r16e	Tungsten700 SMARC SOM: Genio 700 / 8GB / 16GB eMMC / 0 to +70°C
T700_SMARC_SOM_4r16e_MT320_2M	Tungsten700 SMARC SOM: Genio 700 / 4GB / 16GB eMMC / MT320 / 0 to +70°C
T700_SMARC_SOM_8r16e_MT320_2M	Tungsten700 SMARC SOM: Genio 700 / 8GB / 16GB eMMC / MT320 / 0 to +70°C
T700_SMARC_SOM_4r16e_i	Tungsten700 SMARC SOM: Genio 700 / 4GB / 16GB eMMC / -40 to +85°C
T700_SMARC_SOM_8r16e_i	Tungsten700 SMARC SOM: Genio 700 / 8GB / 16GB eMMC / -40 to +85°C
T700_SMARC_SOM_4r16e_MT320_2M_i	Tungsten700 SMARC SOM: Genio 700 / 4GB / 16GB eMMC / MT320 / -40 to +85°C
T700_SMARC_SOM_8r16e_MT320_2M_i	Tungsten700 SMARC SOM: Genio 700 / 8GB / 16GB eMMC / MT320 / -40 to +85°C
450-00238	Universal heatsink for SMARC
SMARC_CAR	Kit - Universal SMARC Carrier Board. Includes antennas, power supply, DB9 cable (Note - SOM sold separately)
SMARC_CAR_BRD	Universal Carrier Board - SMARC (Note - SOM sold separately)