

# TM3

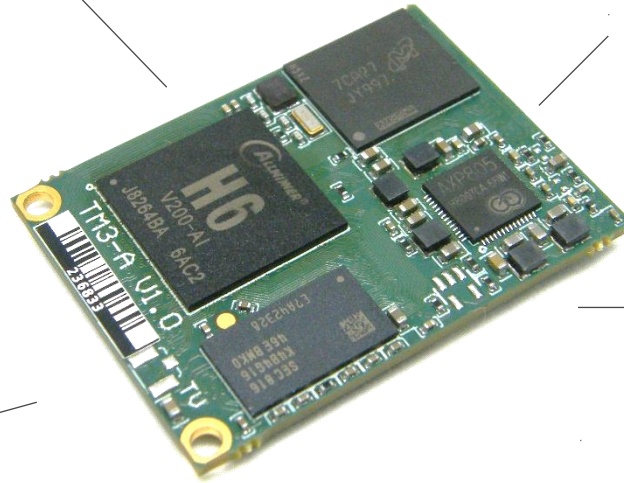
Low-cost, low-power computer-on-module with a powerful Quad Core ARM Cortex™ A53 processor.

## Low Power Consumption

Using just 1W at desktop, the TM3 is ideal for battery-powered products.

## Fast quad core processor

The A53 processor is capable of running up to 1.4GHz.



## Compact Size

Retaining the same 42mm by 30mm form factor as other TMx modules, the TM3's small form factor means your product can maintain a low profile while boasting extra connectivity like USB 3.0, HDMI 2.0 and PCI Express.

## High performance

Passively cooled, Quad core plus a powerful Mali T720 GPU and 4k capable VPU



## SUMMARY

The TM3 computer-on-module offers an excellent compromise between, cost, performance, and connectivity, in a tiny formfactor.

TM3 is designed to be pin compatible with other modules in the range implementing the same core set of industry standard interfaces including, LCD, UARTs, SPIs, I2Cs, Audio, USB2, Ethernet, and GPIO. In addition, TM3 optionally introduces a second board to board connector providing USB 3.0, HDMI 2.0, and PCI Express 2.0 interfaces. Capable of running Linux and Android operating systems and featuring a flexible processor clocking scheme, the TM3 is suitable for a range of performance and power consumption requirements.

- Quad core 1.4GHz ARM Cortex A53 processor
- Neon Floating Point Co-Processor
- Mali-T720 Multi-core GPU supporting OpenGL ES3.1
- Multi Overlay Display Engine
- Video Engine supporting up to 4K video decode
- 1GB & 2GB\* low-power memory options
- 8GB & 16GB eMMC Flash
- WiFi 802.11 a/b/g 2.4GHz
- BLE 5.0
- USB Host, USB Device, three UARTs
- SPI port, I<sup>2</sup>C bus, 60 GPIOs
- Runs Android, Linux
- Low power operation - just 1W idle at desktop

# TM3

## TECHNICAL SPECIFICATIONS

### Core System

Processor	Allwinner H6 ARM Cortex™ A53 Quad CPU Core 1.4GHz CPU Clock Speed 32KB L1 Instruction Cache 32KB L1 Data Cache 512KB unified I/D L2 Cache NEON MPE Coprocessor with SIMD MP
Memory	Low Power DDR3 - 1GB or Low Power DDR4 – 2GB
Graphics	Mali-T720 Multi-core GPU supporting OpenGL ES3.1 Video engine supporting multiple graphics overlays, scaling, dual independent displays, and alpha blending  LCD 18-bit, up to 1920x1080 resolution HDMI 2.0 interface support 4K@60hz resolution
Security	ARM TrustZone – Secureboot Full disk encryption*
Storage	8GB& 16GB eMMC5.1 Flash
Audio	Audio Codec onboard Microphone in / Line in, Headphone output
Camera Interface	USB UVC
Operating System Support	Ubuntu Linux 22.04 LTS Buildroot Balena OS Android 9
Real Time Clock	Optional – Typically implemented on the host board
Watchdog	Yes

### I/O

Ethernet	10/100 Mbit LAN - physical layer on module Supports Auto MDIX
Wireless*	Wi-Fi 802.11 a/b/g 2.4GHz Station and Access Point operation, BLE 5.0 Single UFL connector for both devices Recommended antenna for R&TTE compliance
Serial	3 UARTs up to 5MHz operation Supports RS232 interface (level shifting required) USB 2.0 Host (HS, FS, LS) USB 2.0 Device (HS & FS) USB 3.0 Host (SS, HS, FS, LS) SPI port with chip selects I <sup>2</sup> C bus up to 400KHz
GPIO	Up to 60 inputs and outputs Pins can be configured to suit your design

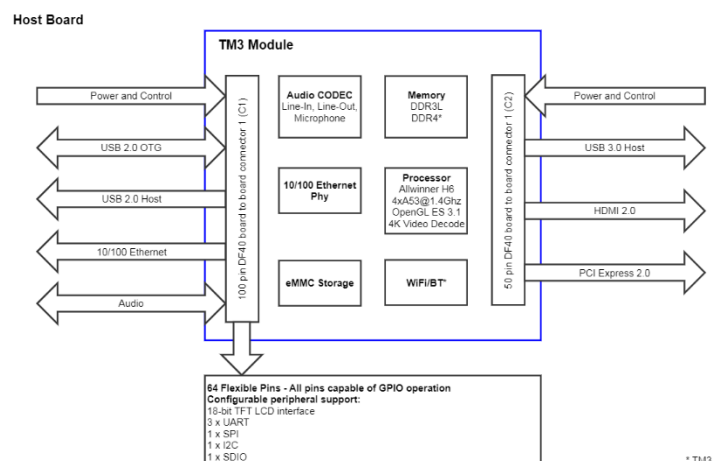
### Power

Input Voltage	3.0 to 3.3 Volts DC
Power Consumption	S3 suspend to RAM 87mW Linux desktop 800mW

### Physical

Operating Temperatures	Standard -20°C to 70°C Humidity 20% to 80% non-condensing
Dimensions & Mounting	42mm (W) x 30mm (L) x 5.3mm (D) 2 corner screw mounts provide secure fitment
Approvals	CE, UKCA Thermal
Connector	100-way Hirose DF40C-100DP_0.4V(51) 50-way Hirose DF40C-50DP_0.4V(51)

## BLOCK DIAGRAM



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