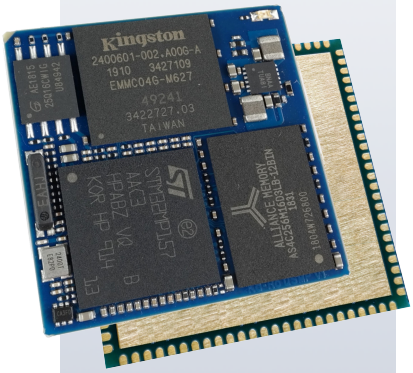
QSMP Evalkit

QS Family - QFN Style Solder-Down Computer-on-Modules

Designed, Engineered & Made by Ka-Ro



Processor

Industrial grade 650 MHz dual core
ARM® Cortex®-A7 based STM32 MP157C

Memory

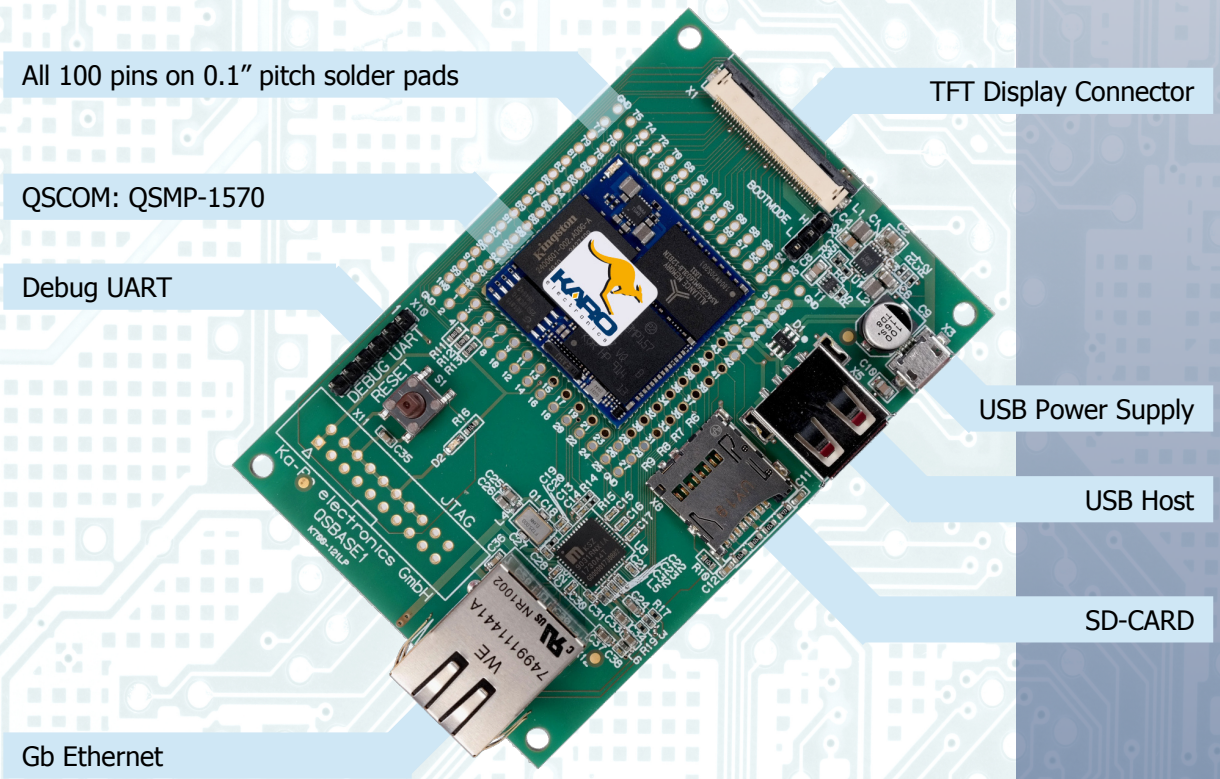
512MB DDR3L
4GB eMMC

Temperature

-25°C to 85°C

Size

Baseboard: 60mm x 90mm
QSMP: 27mm x 27mm x 2.3mm



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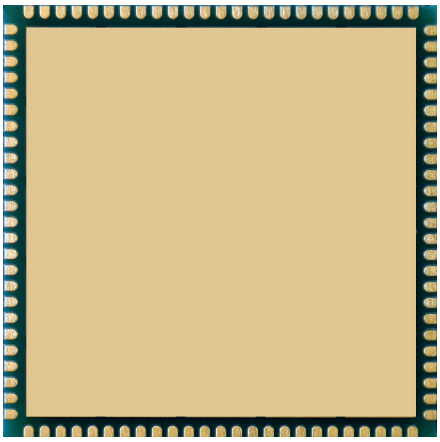
QFN Style Computer On Module Advantages

Defined Return Path

The reason PCB layout becomes more and more important is because of the trend to faster, higher integrated, smaller formfactors, and lower power electronic circuits. The higher the switching frequencies are, the more radiation may occur on a PCB. With good layout, many EMI problems can be minimized to meet the required specifications.

When a module or component is used in a design, the supplier specifies the basis for such a layout. It's not only the pinout which should lead to an easy wiring without the need for crossings. He has also provide a proper solution for the signal path back to the module. If this return path, mostly the ground plane, cannot be connected near the signal pin, the return current has to take another way and this may result in a loop area. The larger the area, the more radiation and EMI problems may occur.

Ka-Ro QSCOM modules uses a large ground pad on the bottom side. With this a defined ground plane connection is available for all signals. In addition to have a good return path for all signals this large ground pad can be used for cooling.



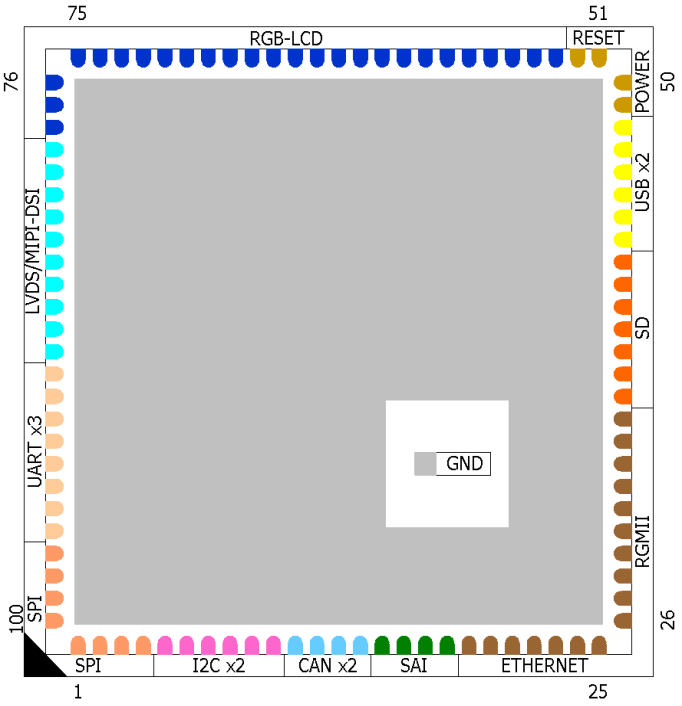
Easy Wiring - Even 2-layer printed circuit boards can be used.

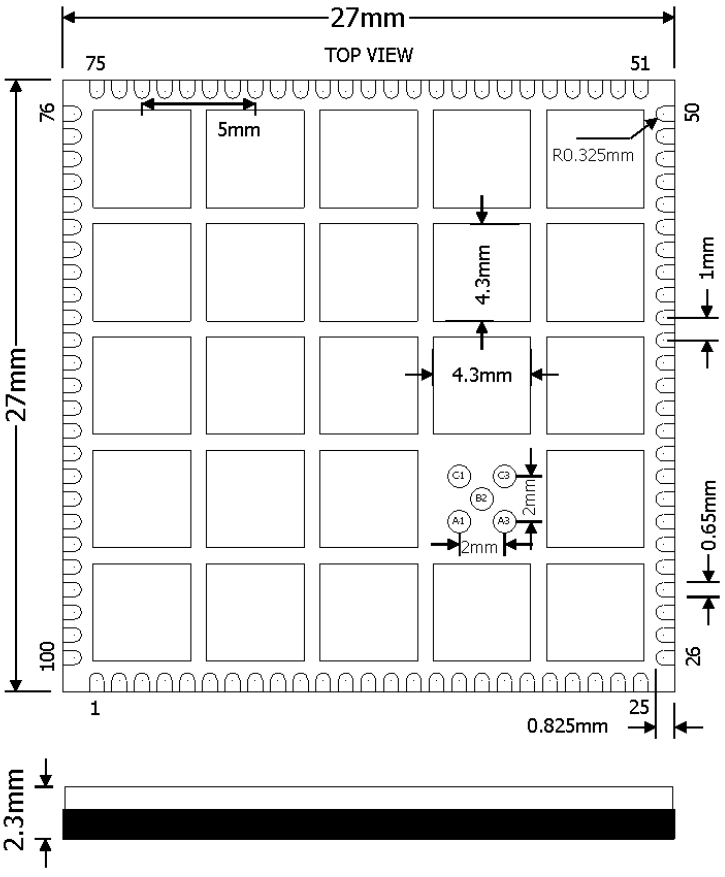
With a solid ground plane on the bottom layer, high speed signals can be routed on the top layer at a defined impedance. However, this is only possible if a peripheral or plug can be connected directly without crossing the routing. Refer to fanout examples at the end of this document.

Advanced Soldering

Using a large solder pad underneath the component has not only electrical and thermal advantages. This is also used to hold the component at a defined height during soldering, without the solder being compressed by the weight, which could result in short circuits.

Standard Contact Assignments





QSMP

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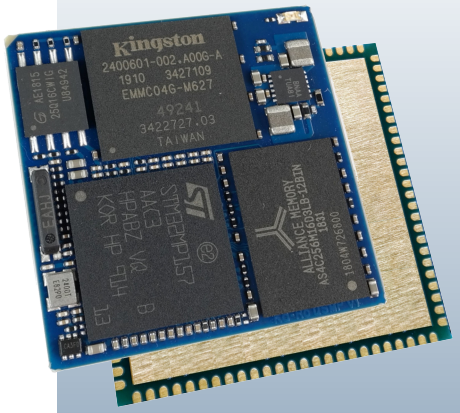
QFN Style Solder-Down
Computer-on-Modules



NEW

- Solder-down version
- 27mm square
- 2.3mm total height
- QFN type lead style
  - 1mm pitch
  - 100 pads
  - Thermal pad
- Visual solder joint inspection possible after soldering
- Single-sided assembly
- High speed design compliant

Key Features

- Processor — STM32MP1 Series
Dual-Core Arm® Cortex®-A7 650MHz
Cortex-M4 209MHz
- RAM — 128MB up to 512MB DDR3L
- ROM — 128MB SLC NAND or
4GB eMMC
- Grade — Industrial
- Temperature — -25°C to 85°C (eMMC)
-40°C to 85°C (NAND)
- Display support
  - Display Interface — 24-bit RGB
MIPI® DSI (2-lanes)
  - GPU — 3D GPU: Vivante®,
OpenGL® ES 2.0
- Connectivity
  - Ethernet, USB2.0, eMMC/SD
  - UART, I²C, SPI, PWM, SAI, CAN

Dual Cortex®-A7

OS Support

- Linux

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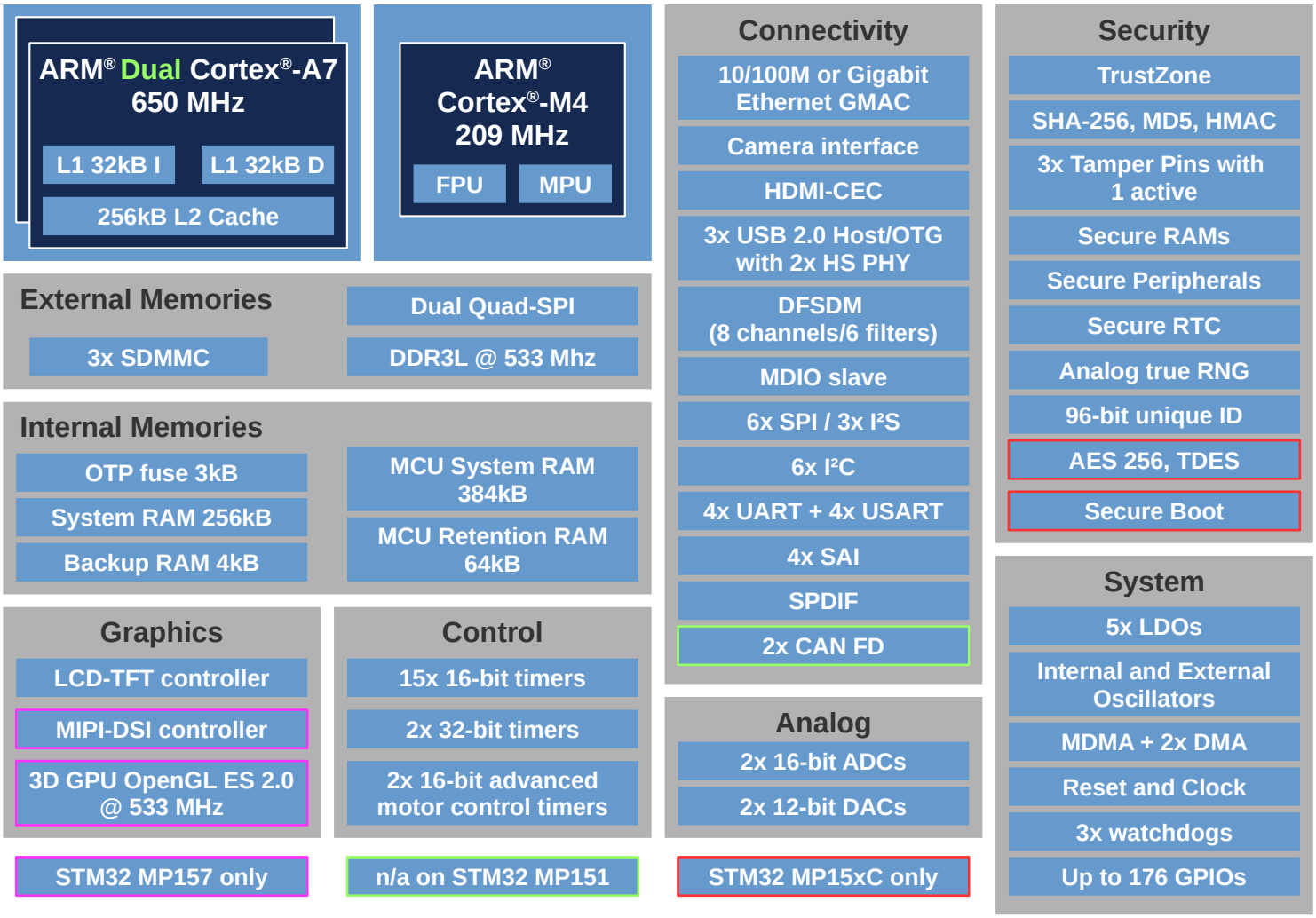
STM32MP1 Block Diagram



Ordering Information

	QSMP-1510 STM32MP151A	QSMP-1530 STM32MP153A	QSMP-1570 STM32MP157C
Primary Arm® Core	1x Cortex®-A7 up to 650 MHz	2x Cortex®-A7 up to 650 MHz	2x Cortex®-A7 up to 650 MHz
Secondary Arm® Core	1x Cortex-M4 up to 200 MHz	1x Cortex-M4 up to 200 MHz	1x Cortex-M4 up to 200 MHz
RAM	128 MB	256 MB	512 MB
ROM	128 MB SLC NAND	128 MB SLC NAND	4GB eMMC
Display Interface	24-bit RGB	24-bit RGB	24-bit RGB + 2-lane MIPI-DSI
3D GPU	-	-	yes
CAN	-	2x FD-CAN	2x FD-CAN
Security	-	-	Secure Boot, Cryptography
Grade / Temp.	Industrial / -40°C to 85°C	Industrial / -40°C to 85°C	Industrial / -25°C to 85°C
Order Code	QSMP/151A/128S/128F/I	QSMP/153A/256S/128F/I	QSMP/157C/512S/4GF/E85

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