

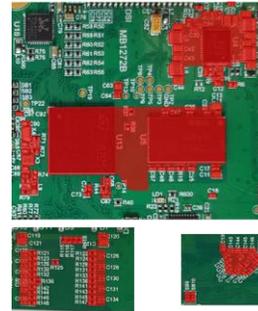
OSD32MP15x System-In-Package Family

The Performance of a MicroProcessor with the Ease of a MicroController

The smallest module using the new STM32MP1 from STMicroelectronics, the OSD32MP15x integrates everything you need for a full-featured embedded Linux or Android system into a single BGA. With the OSD32MP1 you can easily migrate your existing design from a microcontroller to microprocessor featuring Dual Core Arm® Cortex® A7 and an Arm® Cortex® M4.

Benefits

- ▶ **Quicker Designs:**
The OSD32MP1x provides a known good starting point eliminating traditional design complexities such as DDR layout and Power Management integration. Multiple open source reference designs and the ability to leverage existing M4 code simplify getting started.
- ▶ **Up to 64% Reduction in Board Area:**
Integrating over 100 components into a single BGA by leveraging IC manufacturing technology enables us to provide a complete system solution in the smallest possible footprint.
- ▶ **Lower Cost of Ownership:**
Using a SiP reduces the cost of engineering, lowers your PCB and assembly costs, simplifies your supply chain, and provides you a more reliable system. These advantages provide a lower total cost than a discrete system.
- ▶ **World Class Support:**
Access open source reference designs, app notes, and an active community on octavosystems.com. We offer services to review schematics and layout to maximize first pass design success.



Up To 895 mm²



324 mm²

Technical Specs

- ▶ Integrated into a single 18mm BGA Package:
 - ▷ STM32MP15x Dual Core Arm® Cortex® A7 and an Arm® Cortex® M4
 - ▷ up to 1GB DDR3
 - ▷ STPMIC1 Power Management IC
 - ▷ EEPROM
 - ▷ MEMS Oscillator
 - ▷ Passives
- ▶ STM32MP15x Features:
 - ▷ 2x Arm® Cortex®-A7 up to 800MHz
 - ▷ 2x NEON™ SIMD Co-Processor
 - ▷ Arm® Cortex® M4 up to 200MHz
 - ▷ TrustZone®
- ▶ Access to All STM32MP1x Peripherals Including:
 - ▷ USB 2.0 HS + PHY x2
 - ▷ Ethernet 10/100/1000
 - ▷ FDCAN/TTCAN x2, UARTS x4, SPI x6, I2C x6,
 - ▷ eMMC/SD/SDIO Ports x3
 - ▷ GPIO x148
 - ▷ 24-bit RGB Display, MIPI DSI
 - ▷ Camera Interface
 - ▷ 22 Channel 16-bit ADC x2, 12-bit DAC x2
- ▶ Package Options:
 - ▷ 18mm X 18mm (0.71in X 0.71in) 302 Ball BGA.
 - ▷ 1mm BGA spacing
- ▶ Operating Case Temp:
 - ▷ 0°C to 85°C
 - ▷ -40°C to 85°C
- ▶ Power:
 - ▷ IN: 2.8V – 5.5V
 - ▷ Integrated Boost 5.2V
 - ▷ OUT: Buck, LDO x4, Power Switch x2

OSD32MP15x		
18mm X 18mm BGA 1mm Pitch		
STPMIC1 Power Management IC • 2.8V - 5.5V IN • Integrated 5.2V Boost • System Power: Buck, 4x LDO, 2x Power Switch	STM32MP15x Dual Cortex-A7 • Up to 800MHz • 2x L1 32KB I / 32KB D • 256 KB L2 Cache Cortex M4 • Up to 209MHz • FPU/MPU Memory • 256KB System RAM • 384KB MCU Sys RAM • 64KB MCU Ret RAM Graphics • 3D GPU OpenGL ES2.0 Security • TrustZone® • TDES, AES-256 • SHA-256, HMAC Analog • 2x 22 chan 16bit ADC	Connectivity • 24-bit RGB Display • MIPI DSI - 2 lanes • Camera Interface • 1Gbps Ethernet • 2x USB2.0 HS + PHY • 3x SDIO/SD/eMMC • 2x CAN FD/TTCAN • 6x I2C • 4x UART, 4x USART • 4x SAI • 2x Quad SPI (QSPI) • 6x SPI / 3x I ² S • 4x SPDIF Tx/Rx • DFSDM 8 Ch/6 Filters • Up to 148 GPIO Control • 2x 16-bit PWM • Up to 29 timers • Up to 3 Watchdogs • 2x 12bit DAC
UP TO 1GB DDR3L		
4KB EEPROM		
Oscillator		
Passive Components		

Not All Features available on all versions of device

https://octavosystems.com/octavo_products/osd32mp15x/

Ordering Information

All Octavo Systems products can be purchased through our Distribution Partners Digi-Key, Mouser, Arrow, and Avnet.

Part Number	ST Processor	A7 Cores	A7 Speed (MHZ)	M4 Cores	3D GPU	Crypto	DDR3	Package	Temp*
OSD32MP157C-512M-BAA	STM32MP157C	2	650	1	X	X	512MB	18mm x 18mm	0 to 85°C
OSD32MP157C-512M-IAA	STM32MP157C	2	650	1	X	X	512MB	18mm x 18mm	-40 to 85°C
OSD32MP157F-512M-BAA	STM32MP157F	2	800	1	X	X	512MB	18mm x 18mm	0 to 85°C
OSD32MP157F-512M-EAA	STM32MP157F	2	800	1	X	X	512MB	18mm x 18mm	-20 to 85°C
OSD32MP153C-512M-BAA	STM32MP153C	2	650	1		X	512MB	18mm x 18mm	0 to 85°C
OSD32MP153C-512M-IAA	STM32MP153C	2	650	1		X	512MB	18mm x 18mm	-40 to 85°C

All OSD32MP15x family members are pin-to-pin compatible - More Processor Variations and 1GB DDR3 (x32) available upon request - Non-Standard devices are subject to MOQ & Leadtime

Please contact sales@octavosystems.com or your local Octavo Systems representative for these or other variations.

Development Tools

OSD32MP1-BRK

Flexible Prototyping Platform



The OSD32MP1-BRK is a simplified development platform that gives the designer ultimate flexibility. Providing direct access to 106 I/O enables prototypes that closely resemble the final design.

- ▶ Features OSD32MP157C-512M-BAA
- ▶ Interfaces:
 - ▷ micro SD card, micro USB, ST Link/JTAG, UART
- ▶ 32KHz Crystal
- ▶ 4 Layer Single Design
- ▶ Direct Access to 106 I/O via 100 mil (2.54mm headers)
- ▶ Small Form Factor 3" x 1.8" (75mm x 46mm)
- ▶ **Available Now**

<https://octavosystems.com/osd32mp1-brk>

Software Support

The OSD32MP1 family of System-in-Package Devices are compatible with all software developed for the STM32MP1 processor. This includes: OpenSTLinux and the CubeMX Development environment.

Octavo Systems also provides a Debian Linux distribution to help speed up the prototyping and development process. You can quickly install and evaluate different software tools easily.

OSD32MP1-RED

Full Featured Development Platform



The OSD32MP1-RED is a full featured development platform allowing designers to easily evaluate many of the features on the OSD32MP1 while providing industry standard headers to easily expand functionality.

- ▶ Features:
 - ▷ OSD32MP157F-512M-BAA
 - ▷ eMMC, WiFi / Bluetooth
- ▶ Interfaces:
 - ▷ USB Host, ST Link/JTAG, micro HDMI, Ethernet, DSI Connector, UART, USB-C OTG
- ▶ Headers:
 - ▷ Motor Control, Mikroe Click, Camera, Raspberry Pi
- ▶ 4 Layer Design
- ▶ **Available Now**

<https://octavosystems.com/osd32mp1-red>

Application Notes

With a Layout Guide, Pin Mapping, Schematic Checklist, Power Budgeting, Thermal Guide and more, the growing list of Application Notes available for the OSD32MP1 Family will help you cut your design time and get to market faster.

https://octavosystems.com/app_notes/#OSD32MP15x