

# VERDIN SYSTEM ON MODULES



	Verdin IMX95	Verdin IMX8M Plus	Verdin AM62P	Verdin IMX8M Mini	Verdin AM62
<b>SoC / CPU</b>	NXP i.MX95 Up to 6x A55, 1.8GHz	NXP i.MX8M Plus Up to 4x A53, 1.6GHz	Ti AM62P Up to 4x A53, 1.4GHz	NXP i.MX8M Mini Up to 4x A53, 1.6GHz	Ti AM62 Up to 4x A53, 1.4GHz
<b>Microcontroller</b>	1x Arm Cortex-M7, 800MHz 1x Arm Cortex-M33, 333MHz	1x Arm Cortex-M77, 800MHz	1x Arm Cortex-R5F, 800MHz	1x Arm Cortex-M4F, 400MHz	1x Arm Cortex-M4F, 400MHz
<b>Memory</b>					
<b>RAM</b>	Up to 16GB LPDDR4x (32-bit)	Up to 8GB LPDDR4 (32-bit)	Up to 4GB LPDDR4 (32-bit)	Up to 2GB LPDDR4 (32-bit)	Up to 2GB LPDDR4 (16-bit)
<b>Flash</b>	Up to 128GB eMMC	Up to 32GB eMMC	Up to 32GB eMMC	Up to 16GB eMMC	Up to 16GB eMMC
<b>Connectivity</b>					
<b>USB 2.0</b>	1x Host	1x Host, 1x OTG	1x Host, 1x OTG	1x Host, 1x OTG	1x Host, 1x OTG
<b>USB 3.2</b>	1x OTG (Gen1)	1x Host, 1x OTG (Gen1)	-	-	-
<b>Ethernet</b>	2x Gigabit (1x PHY with TSN + 1x RGMII)	2x Gigabit (1x PHY with TSN + 1x RGMII)	2x Gigabit (1x PHY with TSN + 1x RGMII)	1x Gigabit with TSN	2x Gigabit (1x PHY with TSN + 1x RGMII)
<b>Wi-Fi</b>	2.4/5GHz Dual Band Wi-Fi 6 (802.11ax)	2.4/5GHz Dual Band Wi-Fi 5 (802.11ac)	2.4/5GHz Dual Band Wi-Fi 6 (802.11ax)	2.4/5GHz Dual Band Wi-Fi 5 (802.11ac)	2.4/5GHz Dual Band Wi-Fi 4 (802.11n)
<b>Bluetooth</b>	BT 5.4	BT 5.3	BT 5.4	BT 5.3	BT 5.2
<b>PCIe</b>	1x (1x Gen3)	1x (1x Gen3)	-	1x (1x Gen2)	-
<b>I2C / I3C</b>	7x I2C/1x I3C	5x	5x	3x	4x
<b>SPI</b>	Up to 6x	3x	5x	Up to 3x	5x
<b>QSPI</b>	1x	1x	1x	Up to 2x	1x
<b>UART</b>	8x	4x	8x	4x	Up to 9x
<b>PWM</b>	21x	4x	3x	4x	6x
<b>Analog Input</b>	6x	4x	4x	4x	4x
<b>SPIO/SD/MMC</b>	Up to 2x	1x	2x	Up to 2x	Up to 2x
<b>CAN FD</b>	5x	2x	4x	1x	3x
<b>GPIO</b>	Up to 94x	Up to 95x	90x	Up to 98x	Up to 104x
<b>JTAG</b>	1x	1x	1x	1x	1x
<b>Multimedia</b>					
<b>NPU</b>	2-3x better performance vs IMX8M Plus	2.3 TOPS	-	-	-
<b>ISP</b>	✓	✓	-	-	-
<b>Display Controller</b>	Dual	Triple	Triple	Single	Dual
<b>2D/3D Acceleration</b>	✓	✓	✓	✓	✓
<b>Video Decoder/Encoder</b>	✓	✓	✓	✓	-
<b>Display Serial Interface</b>	1x Quad Lane MIPI DSI	1x Quad Lane MIPI DSI	1x Quad Lane MIPI DSI	1x Quad Lane MIPI DSI	Up to 1x Quad Lane MIPI DSI
<b>HDMI</b>	Via Adapter	1x (2.0a, up to 4K)	Via Adapter	Via Adapter	Via External Conversion
<b>LVDS</b>	1x (up to 1920x1080)	1x (up to 1920x1080)	1x (up to 1920x1080)	Via Adapter	1x (up to 1920x1080)
<b>Digital Audio</b>	2x I2S	6x I2S/AC97, 1x S/PDIF	2x I2S/TDM	Up to 5x I2S/AC97, 1x S/PDIF	2x I2S/TDM
<b>Camera Serial Interface</b>	2x Quad Lane MIPI CSI-2	2x Quad Lane MIPI CSI-2	1x Quad Lane MIPI CSI-2	1x Quad Lane MIPI CSI-2	1x Quad Lane MIPI CSI-2
<b>Software</b>					
<b>Operating Systems</b>	Torizon OS, Yocto Linux, Android, FreeRTOS, QNX, VxWorks, INTEGRITY and Green Hills Software	Torizon OS, Yocto Linux, QNX, Zephyr, Android, FreeRTOS	All (Coming Soon) Torizon OS, Yocto Linux, Android, QNX, FreeRTOS	Torizon OS, Yocto Linux, QNX, FreeRTOS, Android, Zephyr	Torizon OS, Yocto Linux, Android, FreeRTOS
<b>Physical</b>					
<b>Supply Voltage</b>	3.135-5.5V DC	3.135-5.5V DC	3.135-5.5V DC	3.135-5.5V DC	3.135-5.5V DC
<b>Dimensions</b>	69.6 x 35 x 6.2mm	69.6 x 35 x 6.2mm	69.6 x 35 x 6.2mm	69.6 x 35 x 6.2mm	69.6 x 35 x 6.2mm
<b>Operating Temp</b>	Up to: -40°C to +85°C	Up to: -40°C to +85°C	Up to: -40°C to +85°C	Up to: -40°C to +85°C	Up to: -40°C to +85°C
<b>Vibration/Shock</b>	EN 60668-2-6/50g 20ms	EN 60668-2-6/50g 20ms	EN 60668-2-6/50g 20ms	EN 60668-2-6/50g 20ms	EN 60668-2-6/50g 20ms
<b>Power Dissipation</b>	TBD	Approx. 1.5W - 6.3W	TBD	Approx. 1.2W - 5W	Approx. 1.2W - 3.1W
<b>Minimum Availability</b>	2039+	2036+	2033+	2035+	2033+



## Highlights and Use Cases

Modern family, optimized for cost, ease-of-use and large scalability

- ✔ General purpose applications
- ✔ Wide performance range for scalable products
- ✔ Perfect for HMIs, mid-range AI applications and Edge Gateways
- ✔ Easy Carrier Board Design with Direct Breakout™
- ✔ Highly Optimized for Value/Cost

## Typical Applications

- ✔ Industrial HMI panels
- ✔ Industrial gateways
- ✔ Battery-powered and handheld
- ✔ Robotics controllers
- ✔ Edge AI devices (vision / ML)

