

SolidRun and Gyrfalcon Team Up to Accelerate On-Device AI Performance with Powerful New i.MX 8M Mini SOM

With AI Acceleration and a range of connectivity features, SolidRun's new i.MX 8M Powered Mini SOM is perfect for developing next generation AI applications for the Edge



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TEL AVIV, Israel, June 3, 2019 /PRNewswire/ -- [SolidRun](#), a leading developer and manufacturer of high-performance System on Module (SOM) solutions, Single Board Computers (SBC) and network edge solutions, today introduces its **i.MX 8M** Mini System on Module (SOM) with robust processing power and Gyrfalcon's artificial intelligence acceleration technology.

SolidRun's i.MX 8M Mini SOM combines all of the essential components necessary to quickly prototype powerful AI solutions into a compact 47mm x 30mm module, including processor and memory options, a GPU, Gyrfalcon's Lightspeur® 2803S Neural Accelerator chip, optional flash storage, audio and video input and output and more.

"It used to be that the cloud was the best solution for neural network processing due to having virtually limitless processing power. However, with the vastly capable embedded CPUs available to edge devices today, such as

the i.MX 8M series from NXP, and the efficient neural network models and AI frameworks in use today, more device manufacturers are migrating AI processing loads out of the cloud to the edge," said Atai Ziv, CEO at SolidRun. "We teamed up with Gyrfalcon to design our i.MX 8M Mini SOM to serve as the ideal building block for device manufacturers to harness the power of i.MX 8M series processors and the Lightspeur® 2803S chip to quickly prototype and bring to market powerful new hardware solutions that unleash the true potential of edge AI."

With designs supporting low-power applications to those that require extreme processing capabilities, SolidRun's i.MX 8M Mini SOMs harness NXP's Arm Cortex A53 single/dual/quad core 1.8Ghz i.MX 8M processors with advanced 14LPC FinFET process technology. This cutting-edge building block is tailor made for a wide range of IoT and industrial applications, and features up to 4GB LPDDR4, wireless communications options including Bluetooth and WIFI, PCIe 2.0 and robust multimedia features including 20 audio channels (32bits), MIPI-DSI, and a 1080p encoder and decoder.

SolidRun's new Mini SOM also harnesses the power of Gyrfalcon's Lightspeur® 2803S Neural Accelerator to help manufacturers quickly and cost effectively create powerful Edge AI applications based on TensorFlow, Caffe and PyTorch deep learning frameworks that benefit from a powerful dedicated AI acceleration processor. The 9 x 9mm accelerator, based on Gyrfalcon's Matrix Processing Engine architecture, offers multi-dimensional, high-speed neural network processing at very low power, rated at 24 TOPS/W per chip.

Ideal for digital assistant solutions, autonomous cars, security camera systems, video and audio analytics, digital signage and more, SolidRun's Mini

SOM can be used in fan less applications. Its ability to maintain a low operating temperature without a fan reduces the potential of heat and dust-related failures, which results in reliable long-term operation and performance.

Additionally, SolidRun offers the HummingBoard Pulse carrier board, which is perfect for pairing the powerful AI processing capabilities of the i.MX 8M Mini SOM with a nearly limitless variety of external connectivity and communications features, via its integrated USB-C, Micro USB and USB 3.0 ports, mPCIe and M.2 expansion ports, 10/100/1000 ethernet jack (supports PoE), microSD slot, SIM Card holder, HDMI and DSI 2.0 display output, audio input and output and more.

"It is a great opportunity to collaborate with SolidRun, and we are looking forward to seeing many customers using this powerful combination of capabilities built into the i.MX 8M SOM offerings," said Bin Lei, VP of Sales at Gyrfalcon Technology, Inc. "These packages will accelerate a customer's time to market, and makes great use of our market leading AI accelerator for edge and edge server innovations."

SolidRun's i.MX 8M Mini SOM specifications include:

Model	i.MX 8M Mini Solo	i.MX 8M Mini Dual	i.MX 8M Mini Quad
Processor core	i.MX 8M Mini S	i.MX 8M Mini D	i.MX 8M Mini Q
General Purpose Processor	Arm Cortex-M4 core up to 400MHz		
System on Chip	Single core ARM A53	Dual core ARM A53	Quad core ARM A53
Processor speed	Up to 1.8GHz		
Floating Point	VFPv4		
SIMD	NEON		
GPU	GC NanoUltra 3D + GC320 2D		

3D GPU Support	OpenGL ES 2.0	
HW Video Dec/Enc	Multi Format	
Memory	32 bit, up to 3GB LPDDR4-3000	32 bit, up to 4GB LPDDR4-3000
Wired Network	10/100/1000 Mbps	
Wireless Network	802.11 a/b/g/n (Optional)	
Bluetooth	BT4.2 and BT 5.0 (Optional)	
Max resolution	1080p @ 60Hz	
Display Interfaces	MIPI-DSI	
Dual display support	Yes	
Artificial Intelligence Accelerator	Gyr Falcon Technology Lightspeur® 2803	
Supported External Storage Options	NOR-Flash, SD/microSD, PCIe SSD	
Supported Internal Storage	eMMC, QSPI-NOR (Optional)	
SD/MMC	1	
Video Decode	1080p60 VP9, VP8, HEVC/H.265 decoder, AVC/H.264	
Video Encode	1080p60 AVC/H.264 encoder, VP8 encoder	
USB 2.0	2	
Serial ports	2 (RTS/CTS/RX/TX) +1 (TX/RX)	
Digital audio serial interface	20 channels, 32bits @384khz DSD512 SPDIF TX&RX 8 x PDM DMIC channel	
Camera interface port	1 x MIPI-CSI2 (4 Lane)	
PCIe 2.0	1	
I2C	2	
SPI	1	
PWM	4	
GPIO	75	
JTAG	Test Point Header	
RTC	Yes	
Linux Support	Yes	

Android Support	Yes
Temperature range	Commercial, Industrial
Main Voltage	5V
IO Voltage	3.3V
SOM Supply	3.3V / 1A
SOM interface	Hirose DF40 connectors 1.5mm up to 4.0mm mating height
Dimensions (W x L)	47mm x 30mm

The i.MX 8M Mini SOM with Gyrfalcon Lightspeeur® 2803S AI accelerator chip is available today through SolidRun or Arrow, with a starting MSRP of \$56 USD. To help expedite the development process, customers will be provided access to an SDK featuring drivers and prebuilt libraries, API for easy software integration, pretrained Convolutional Neural Network models and sample source code.

For more information about the i.MX 8M Mini SOM, please visit <https://www.solid-run.com/nxp-family/imx8m-mini-som>. Or, for more information about SolidRun, please visit www.solid-run.com. For more information about Gyrfalcon's Lightspeeur® 2803S AI accelerator chip, please visit <https://www.gyrfalcontech.ai/solutions/2803s/>.

About SolidRun

SolidRun is a global leading developer of embedded systems and network solutions, focused on a wide range of energy-efficient, powerful and flexible products. Our innovative compact embedded solutions are based on ARM and x86 architecture and offer a variety of platforms including SOMs (System-on-Module), SBCs (Single Board Computer) and industrial mini PCs.

SolidRun offers a one-stop-shop for developers and OEMs, providing a complete service from hardware customization, to software support and even

product branding and enclosure design. With a mission to simplify application development while overcoming deployment challenges, SolidRun proudly provides customers faster time-to-market and lower costs.

About Gyrfalcon Technology Inc.

Gyrfalcon Technology Inc. (GTI) is the world's leading developer of high-performance AI Acceleration that uses low power, packaged in low-cost and small-sized chips. Founded by veteran Silicon Valley entrepreneurs and AI scientists, GTI drives adoption of AI by bringing the power of cloud Artificial Intelligence to local devices and improves Cloud AI performance with greater performance and efficiency. The company provides the utmost in AI customization for new equipment and a path to AI upgrade to customers by offering AI accelerator chips, board solutions and IP Licensing. For more information, visit <https://www.gyrfalcontech.ai/>.

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