

### Features

- 5051 Aluminum Alloy Box with Protective Coating and a 6016-T6 Alluminum Alloy Base
- Freescale® i.MX 6Q Industrial Processor @ 800MHz
- Quad ARM Cortex™ -A9 CPU
- 2GB of Soldered DDR3 RAM
- High-Performance Video and Graphics
  - HD1080p, 3D, and 2D HW Accelerators
- Multiple Video Interfaces
  - HDMI 1.4 and Two Channel LVDS
  - MIPI Capture and Display and CMOS Camera Input
- Gigabit Ethernet (GbE) with IEEE-1588™
- Six USB 2.0 Ports and One USB On-The-Go Port
- Two CAN Ports
- Two RS-232/422/485 Serial Ports up to 1Mbps
- Three RS-422/485 Serial Ports up to 5Mbps
- 24 Lines GPIO Tolerant up to 30VDC
- HDMI and Stereo Audio
- CFAST, SD, and MicroSD Sockets
- Mini-PCIe and IO60 Expansion
- Powered by PoE or 10-50VDC Input
- Fanless -40° to +85°C Operation



### Product Description

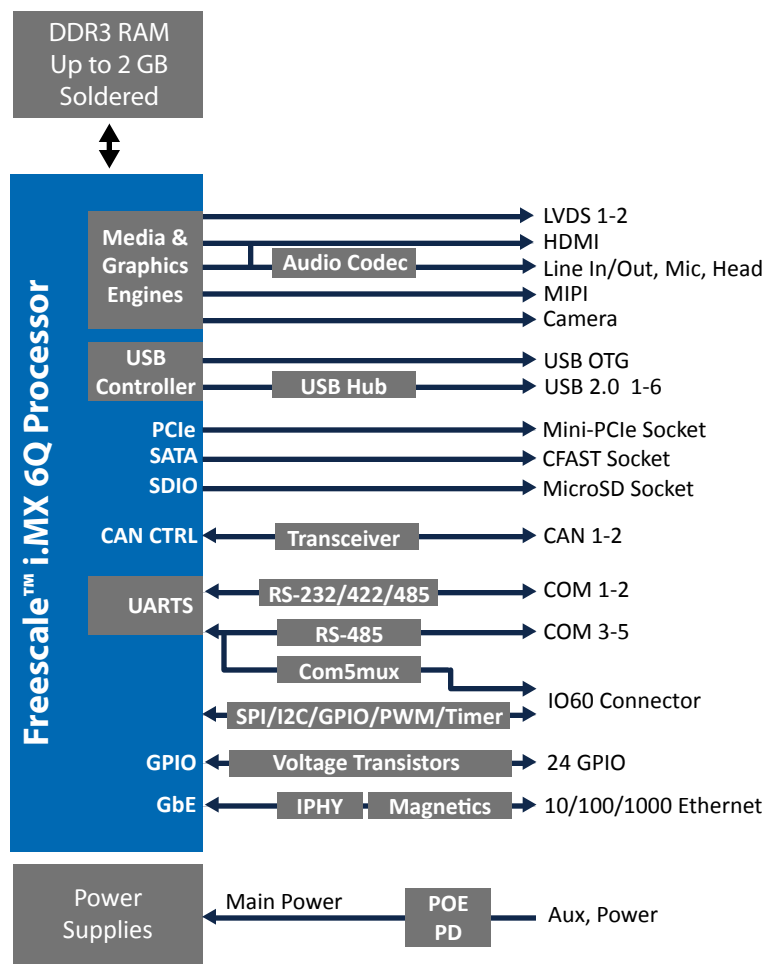
WinSystems' SYS-398Q quad-core enclosed single board computer combines high performance multimedia graphics with a rich mixture of Industrial I/O. The Freescale i.MX 6Q processor's integrated power management provides excellent efficiency and allows operation from -40°C to +85°C without active cooling. It is designed for demanding graphics applications in security, transportation, medical, and digital signage.

The low power, high-performance of ARM cores coupled with readily available software tools make them an excellent choice for embedded systems. Leveraging Freescale's proven track record in long term product support with the operating system and application development driven by consumer ARM devices, the SYS-398Q is ideal for off-the-shelf industrial designs.

Enclosed in a custom anodized aluminum enclosure for added protection, the SYS-398Q is durable and ready for the most rugged environments.

The SYS-398Q series also introduces the IO60 expansion connector to allow for additional functionality. The IO60 specification supports I2C, SPI, TTL-UART, and PWM signals, allowing stackable expansion through off-the-shelf or application specific designed modules. When coupled with the Mini-PCIe socket, the SYS-398Q is one of the most expandable ARM designs currently on the market.

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	SYS-398Q-2G-0	SYS-398D-2G-0	SYS-398S-1G-0
<b>Processor</b>	Freescall i.MX 6Q	Freescall i.MX 6DL	Freescall i.MX 6S
Cores	4x ARM Cortex A9	2x ARM Cortex A9	ARM Cortex A9
Frequency	800MHz	800MHz	800MHz
Cache	32KB/32KB L1, 1MB, L2	32KB/32KB L1, 512KB L2	32KB/32KB L1, 512KB L2
<b>Memory</b>	2GB 64bit DDR3	2GB 64bit DDR3	1GB 32bit DDR3
Embedded	256KB	128KB	128KB
<b>Hardware Display</b>			
<b>Accelerators</b>	NEON Media Processor Engine	NEON Media Processor Engine	NEON Media Processor Engine
3D Graphics Core	Open GL ES 3.0, Open CL	Open GL ES 3.0	Open GL ES 3.0
2D Graphics Core	Dual BitBit	BitBit	BitBit
Vector Graphics Core	OpenVG 1.1		
<b>Video Interfaces</b>	Up to Four Active Displays	Up to Two Active Displays	Up to Two Active Displays
HDMI 1.4 Type A	HD1080p60	HD1080p30	HD1080p30
LVDS Interface	2x(2048x1536 or 2x(1280x720)	2x(1366x768)	2x(1366x768)
MIPI/DSI	Capture + Display		
<b>MIPI</b>	Display Port + Camera Input		
<b>Camera Interface</b>	CMOS 8 bit	CMOS 8 bit	
<b>Ethernet</b>	1Gbps	1Gbps	1Gbps
	Wake on LAN	Wake on LAN	Wake on LAN
	IEEE 1588	IEEE 1588	IEEE 1588
<b>Serial</b>			
RS-232/422/485	2x up to 1Mbps	1x up to 1Mbps	1x up to 1Mbps
RS-422/485	3x up to 5Mbps		
<b>CAN Ports</b>	Two	Two	
<b>USB Ports with Over-Current Protection</b>	6xUSB 2.0 + On The Go	6xUSB 2.0 + On The Go	2xUSB 2.0 + On The Go
<b>Audio Interfaces</b>	HDMI + Line In/Out, Mic, Head	HDMI + Line In/Out, Mic, Head	HDMI + Line In/Out, Mic, Head
<b>General Purpose I/O</b>	24 Lines Tolerant to 30V	24 Lines Tolerant to 30V	24 Lines Tolerant to 30V
<b>Mass Storage</b>	CFast +SD/SDIO + MicroSD	SD/SDIO + MicroSD	SD/SDIO + MicroSD
<b>Expansion Bus Connectors</b>			
Mini PCIe	One Half Size	One Half Size	
IO60	I2C, SPI, TTL & PWM	I2C, SPI, TTL & PWM	I2C, SPI, TTL & PWM
<b>Operating Temperature</b>	-40° to +85°C	-40° to +85°C	-40° to +85°C
<b>Timers</b>	Three	Three	Three
<b>Real Time Clock</b>	Secure RTC	Secure RTC	Secure RTC
<b>Battery</b>	Optional External	Optional External	Optional Exter
<b>Watchdog Timer</b>	Programmable + TrustZone	Programmable + TrustZone	Programmable + TrustZone
<b>Electrical</b>			
PoE PD	IEEE802.3at (Up tp 25W)	IEEE802.3at (Up tp 25W)	IEEE802.3at (Up tp 25W)
Aux. Input	+10 to 50VDC	+10 to 50VDC	+10 to 50VDC
<b>Mechanical</b>			
Dimensions	8 x 5 in (203.20 x 127 mm)	8 x 5 in (203.20 x 127 mm)	8 x 5 in (203.20 x 127 mm)
Weight	1.20 lbs (545 gm)	1.20 lbs (545 gm)	1.20 lbs (545 gm)
System Thickness	1.6 (40.64 gm)	1.6 (40.64 gm)	1.6 (40.64 gm)

### Custom Configurations

Our engineering staff can utilize building blocks contained in our standard products to address most requirements that arise. We will work directly with your staff to define an optimum solution to reduce your time-to-market.

### Ordering Information

Visit our website, send us an email or call directly to speak with an Applications Engineer who can advance your unique project. Please reference the product number below.  
**SYS-398Q-2G-0** Enclosed Quad-Core ARM 3.5" SBC