

Sophia Development Tools: Comprehensive Solutions on Freescale's i.MX21



Freescale Semiconductor's i.MX family of applications processors provides Smart Speed™ technology and design-essential features for the next generation of mobile multimedia handhelds and wireless products. The low power consumption of Freescale applications processors enables wireless device users to benefit from extended run times through advanced power management architecture.

i.MX21 Applications Processor

The i.MX21 multimedia applications processor delivers the ultimate performance in multimedia to handheld devices. The i.MX21 enables developers to enter new dimensions in smart video, 3-D graphics, connectivity and power management.

Key Benefits

- > **Enhanced Video Capabilities:** The i.MX21 has a built-in, low-power eMMA hardware block, comprising an MPEG-4 and H.263 encoder/decoder, and image pre-processing and post-processing stages. Devices with the i.MX21 are capable of long video playback time with excellent image and video quality (high frame rates and large screen resolution support). Hardware code addresses the I/O bottleneck and helps reduce power consumption, enabling greater device mobility.
- > **Exceptional Graphics:** Whether watching video or running graphics-intensive applications such as 3-D gaming, users have a great experience. The i.MX21 elevates overall system performance through a bus master interface that reduces overhead to external multimedia coprocessors. Advanced graphics software standard application programming interfaces (APIs) and 3-D software engines also are supported.
- > **Power Management:** All the robust features in the world don't matter if your device can't go the distance. The i.MX21 enables power-aware and power-optimized multimedia applications through effective system clock distribution, low current leakage control and frequency change on the fly.
- > **Smart Speed Switch:** Users can achieve true parallelism resulting in more effective data per CPU cycle. The switch processes up to four simultaneous transactions, offering the effective throughput of a 532 MHz bus. This provides enriched multimedia experiences, such as V2IP, with exceptional quality that exceeds the performance of higher MHz processors.
- > **USB On-The-Go (OTG):** The i.MX21 is at the forefront of the applications processors market in providing a dedicated OTG port for an external OTG transceiver. Two USB hosts work with other PC peripherals without PC involvement, offering ease of connectivity to smart handheld devices while consumers are mobile. Another plus: It's less expensive than an external module.
- > **Embedded Tools:** Applications developed on the i.MX21 applications processor require software and hardware debugging tools that are fast and easy to use. Sophia Systems—a leader in the embedded systems industry for 30 years—offers comprehensive development solutions based on Freescale microprocessors. Sophia's tools, reliable and respected in the developer community, are the primary reason Freescale has partnered with Sophia Systems and named the company a member of our global Design Alliance Program.

Sophia
systems™

Learn More: For more information please visit www.freescale.com.

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semiconductor™

Embedded Tools Solutions for Developers

Sophia Systems is celebrating 30 years of success in providing powerful and reliable real-time microprocessor emulation systems, reference platforms and other debug tools, enabling thousands of hardware and software engineers to complete their development projects on time and within budget.

JTAG Emulator Solutions

EJ-Debug

Sophia's EJ-Debug is a compact, USB-powered JTAG emulator that's sure to meet any engineer's field applications and development needs.

- > Supports the CPU's maximum internal clock speed
- > Two hardware breakpoints can be set for address, data and status conditions
- > Unlimited software breakpoints
- > High-speed download to external Flash ROM capability
- > More than 100 different flash memory devices supported with write/re-write (clear, fill-up) capabilities
- > Powered by USB bus (no AC adapter necessary)
- > Automatic script execution via the BATCH button
- > Useful for field maintenance and/or for automatic writing/upgrading in mass production
- > USB interface for high-speed communications with host computer

EJ-Debug ETM

Sophia's popular EJ-Debug JTAG emulator now supports high-speed 200 MHz ETM trace and optional ETB support—all in the same compact, USB-powered design.

UniSTAC™ II/J

The UniSTAC II/J is Sophia Systems' most sophisticated JTAG emulation system.

With two different price points (depending if LAN interface is required), the UniSTAC II/J is sure to meet and exceed all JTAG development needs—all within budget. A USB-only or USB/LAN interface provides high-speed communications to a host PC or laptop computer.

- > Supports the CPU's maximum internal clock speed
- > Branch trace capability makes verifying functions and performances easy
- > Download to external Flash ROM capability
- > Over 100 different Flash memory devices supported with write/re-write (clear, fill-up) capabilities
- > USB-only or USB/LAN interface

Watchpoint Debugger

Sophia's high-level language debugger, Watchpoint®, is included with all Sophia Systems emulators. Hosted on Windows® XP/ME/2000/NT/98, Watchpoint provides a standard interface to all of Sophia's emulator systems. Powerful and sophisticated, Watchpoint directly controls the emulator hardware in a simple and easy-to-use environment.



Partnering with Freescale

Sophia's Watchpoint Debugger offers interface software for Microsoft's® Platform Builder (WP4MSPB). This Watchpoint plug-in for Platform Builder supports Freescale's i.MX21 multimedia applications processor, enabling developers of systems based on the i.MX21 processor with Windows CE.NET installed to use Sophia's powerful emulation tools. The tools decrease debugging time by providing a more efficient debugging process. Developers of systems based on the i.MX21 processor can use Watchpoint and the Watchpoint interface for Platform Builder to enjoy a wide range of debugging capabilities, such as program downloading to Flash ROM, program execution, break, view/modify of each memory/register, bus trace, view of emulation memory and more.