Technological Arts Inc.

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Adapt9S12XS256 MCU Module

USD $119.00

Â **Product Info**

Overview: The Freescale/NXP 9S12XS microcontroller is a low-cost, stripped-down version of the S12XE, omitting the XGATE co-processor, Memory Protection Unit, and Emulated EEPROM. It features the high-performance CPU12X core, operating at up to 40 MHz, additional addressing modes, and fast 16-channel high-resolution analog-to-digital converter subsystem (12-bit resolution and 3us conversion time). The MC9S12XS has full 16-bit data paths throughout.

Adapt9S12XS joins the "Adapt" Modular Prototyping System (AMPS) pioneered by Technological Arts. Unlike conventional evaluation and demo boards offered by other vendors, the flexible design of this system addresses the varied requirements of evaluation, training, product development, proof-of-concept prototyping, and even volume production.

MCU Features: *The MC9S12XS256 includes 256K bytes of Flash, 12K bytes of RAM, and 8K bytes of DataFlash. Peripheral subsytems include:*

- two asynchronous serial communication interfaces (SCIs)
- one serial peripheral interface (SPI)
- one 16-bit timer module (TIM), supporting:

    - 8-channel Input Capture/Output Compare
    - overflow interrupt
    - pulse accumulator
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- one 4-channel 24-bit Periodic Interrupt Timer (PIT)
- one 16-channel, 12-bit analog-to-digital converter
- 8-channel pulse-width modulator (PWM)
- one MSCAN 2.0A, B software compatible module (MSCAN12)

- 40MHz operation
- extended CPU instruction set
- additional Condition Code Register
- programmable eight level interrupt controller
- enhanced Memory Management Controller
- new four channel Periodic Interrupt Timer
- new low-power RC trigger and fast recovery from STOP modes
- decimal prescaler for Real Time Interrupt module
- improved SCI featuring hardware bit manipulation for LIN
- enhanced trigger source options for Analog to Digital Converters
- amplitude-controlled Pierce oscillator
- wider and deeper debug module

Product Details

Module Overview: Implemented in an "AdaptS12" form factor board, Adapt9S12XS256 is compatible with an entire range of application cards, prototyping cards, and backplanes, and usable with solderless breadboards ("proto boards"). The module includes all necessary support circuitry for the MCU, as well as a 5-Volt regulator, dual RS232 transceivers, and one CAN transceiver on-board.

- 9S12XS256J0 MCU (112-pin)
- 4 MHz crystal
- bus speed up to 40MHz (using on-chip PLL)
- accommodates optional user-supplied oscillator
- automotive-grade low-dropout 5V regulator (mounted on rear)
- 12K RAM
- 8K Data Flash
- 256K high-endurance Flash
- independent Flash blocks permit execution from one block while programming/erasing another block
- fast in-circuit programming
- Background Debug Mode (BDM) fully supported for loading and debugging user code
- universal 6-pin/10-pin BDM connectors support BDM pods from multiple vendors (we recommend our low-cost USBDMLT pod)
- RS232 transceivers provided for two SCI channels

- one physical-layer high-speed CAN transceivers (PCA82C250)
- 8-channel Input Capture/Output Compare Timer
- 16-channel 12-bit analog-to-digital converter
- 8-channel PWM subsystem
- periodic interrupt timer
- includes reset button
- accommodates optional precision voltage reference chip for analog-to-digital converter
- 2.30" x 3.25" (83mm x 58mm) standard Adapt9S12 form-factor card
- two 50-pin connectors (H1 and H2) bring out all I/O pins of the MCU
- all I/O pins on a 0.1" grid for easy interfacing to standard perfboard
- versatile connector options for use with solderless breadboards, prototyping cards, or embedding into your design
- stackable vertically or horizontally
- convenient corner mounting holes
- ideal development platform for all 9S12XS variants

- assembled, tested module, ready for use via BDM pod
- red and black power connector wire (#PCJ1-8)
- printed schematic/pinout sheet
- find data sheets, manuals, and all other resources for this product by clicking on the Resources tab, above

If you require mating connectors, browse Connectors in the Components category at the left. For power supplies, browse the Accessories category.

Before you order...

All of our standard connector options are available for this board. The product photo above shows "RA1" connector on both H1 and H2. Please make your choice of connectors before adding this item to your shopping cart. Otherwise, the board will be shipped with the default option (i.e. no connectors on H1 and H2).

Attention volume users! We can customize this module to suit your needs (e.g. different crystal/oscillator, different MCU variant, selectively populated communications transceivers, etc.). Please contact us for a quote on quantity of 25+ units.

Resources

- Data Sheet and Schematic

- HCS12XS Family Fact Sheet

- HCS12 and S12X Family Compatibility
- HCS12XS Product Family Brief
- MCU Reference Manual and Device Guide
- Freescale S12XS web page

- uBug12JE: a free Java-based multi-platform GUI for working with the on-chip serial monitor
- Freescale's CodeWarrior IDE for Windows with Assembler, Debugger, and C compiler for S12X (32K C code limit; unlimited assembler)
- Learn Programming in C with CodeWarrior
- CodeWarrior Learning Center
- Cosmic C Compiler
- QuantiPhi (Low-Level Driver Configuration and Generation Tool) for Simulink

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Vendor Information