EMAC, inc.
EQUIPMENT MONITOR AND CONTROL
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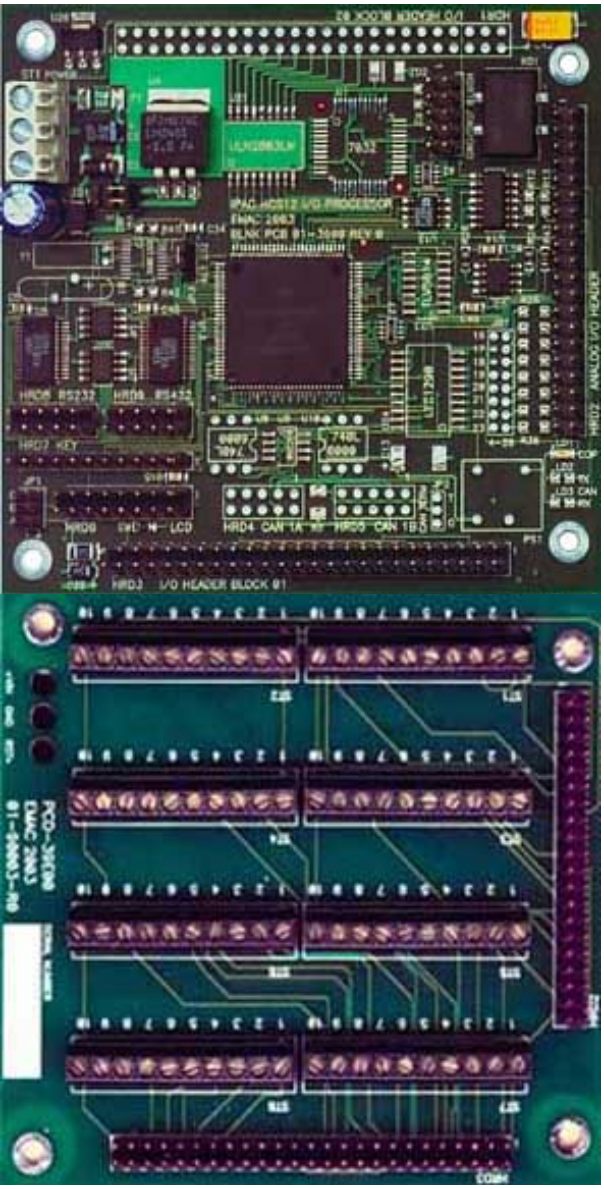
iPAC-HCS12



CPU: Freescale 68HCS12 16 Bit Processor (MC9S12DG256BCPV) running with a CPU clock speed of about 50 MHz with BDM debugger capability.

MEMORY: 256K of internal Flash in-circuit programmable, 4K byte EEPROM, 12K of RAM, and 96 bytes of battery backed RAM.

DIGITAL I/O: 16 General Purpose HCS12 Digital I/O lines, 8 Digital Inputs, 8 Digital Outputs, and 8 High Drive Digital Outputs..

COUNTER/PWM: 8 Multi-Purpose HCS12 Digital I/O lines (GP/Counters/PWM).

ANALOG INPUTS: 16 channels of 10 bit A/D 0 - 5 Volts.

ANALOG OUTPUTS: 2 channels of 8 bit D/A using filtered PWM channels.

COMMUNICATION: 1 RS232 Port and 1 RS232/422/485 port.

TIME: Battery Backed Real Time Clock/Calendar.

RESET:

External Reset Button provision.

INTERFACES: Character LCD interface with backlight support and a 24 key, keypad interface.

SOFTWARE: Resident Bootloader, GNU C Compiler with full drivers in object format, and a Demo/Test application with source code.

The iPac HCS12 is a powerful Single Board Computer (SBC) based on the Freescale 68HCS12 processor. Although being extremely powerful with ample I/O for demanding applications, this board consumes minimal power, is low cost, and has a small footprint. The iPac HCS12 uses the Standard PC/104 form factor (3.8" x 3.5") allowing the use of standard PC/104 mounting hardware and enclosures. Also available is an optional Screw Terminal board(PCD-39E00-000) for the iPac (shown to the right) that is stackable, providing numerous I/O points with screw termination, in a very small package. Two Screw Terminal boards are required to accommodate all of the iPac I/O. The 68HCS12 microcontroller unit (MCU) used on the iPac is a 16-bit device composed of standard on-chip peripherals including a 16-bit central processing unit,128K bytes of Flash, 8K bytes of RAM, 2K bytes of EEPROM, two asynchronous serial communications interfaces (SCI), two serial peripheral interfaces (SPI), an 8-channel IC/OC enhanced capture timer, two 8-channel, 10-bit analog-to-digital converters (ADC), an 8-channel pulse-width modulator (PWM), 29 discrete digital I/O channels, 20 discrete digital I/O lines with interrupt and wakeup capability, and CAN 2.0 A, B software compatible modules. EMAC integrated this powerful 16 bit processor onto a board which contains 48 digital I/O lines, 24 A/D inputs, 6 D/A outputs, 2 serial ports, CAN port, Real Time Clock, keypad interface, and an LCD interface. This is a do-it-all Single Board Computer. The resident flash on the iPac can be programmed via it's serial bootloader firmware over the RS232 com port or via it's BDM port. Software can be written with Cosmic Software's HC12 paged compiler or the Free GNU compiler located at: http://www.gnu-m68hc11.org/m68hc11_download.php. For more information on 68HC12 GNU tools go to: http://www.gnu-m68hc11.org/blog/. EMAC provides Driver object files and Demo application source code usable by the free GNU or Cosmic compilers, allowing the user to quickly develop custom applications. Programs developed in this manner can download over the provided serial bootloader at no extra cost to the user other than the original purchase of the hardware.

Specifications

SBC Type:

Single Board Computer Microcontroller

Processor

Processor:

Freescale 68HCS12 16 Bit

Clock Speed:

50 MHz

Real Time Clock:

Memory

Primary Flash:

256 Kb internal

Primary I/O

GPIO:

16x General Purpose I/O

Disk Interface:

LCD interface with backlight support and a 24 key

Ethernet:

10/100 BaseT Ethernet

Serial Ports:

1x RS232

1x RS-232/422/485

Watchdog:

Primary I/O Misc.:

External Reset Button provision.

Secondary I/O

CAN:

CAN 2.0A/B

Timers/ Counters/ PWM:

8x General Purpose Timers

LPT Port:

Keypad:

PS/2:

Analog on

A/D:

A/D Channels:

16 Chan 10 bit, 8 Chan. 12 bit

D/A:

D/A Channels:

2 Chan. 8 bit, 4 Chan. 12 bit

Dimensions

Dimensions:

3.8 × 3.5 in

Form Factor:

iPac

Power Requirements

Voltage:

5 V

Typical Current:

120 mA

Power Misc.:

Onboard regulation allows 5 volt or 7.5 - 15 volt DC board input voltage

Environmental

Low Operating Temperature:

0 C

High Operating Temperature:

70 C

Upper Operating Humidity:

90%

Pricing

i312-01-00003

IPAC HCS12 (MOQ 25)

Non-Stock

$150.00

i312-01-00313

IPAC W/ ANALOG & CAN UPGRADE

Stock

$300.00

i312-01-00303

IPAC W/ ANALOG UPGRADE (A/D & D/A) (MOQ 25)

Non-Stock

$250.00

i312-01-00013

IPAC W/ CAN UPGRADE (MOQ 25)

Non-Stock

$200.00

i312-01-00103

IPAC W/ 12 BIT A/D (MOQ 25)

Non-Stock

$210.00

i312-01-00113
IPAC W/ 12 BIT A/D & CAN (MOQ 25)
Non-Stock
$260.00
Keypads:
E020-25
12 KEY MEM TELEPHONE STYLE KEYPAD
$25.00
E020-21
16 KEY MEMBRANE HEX STYLE KEYPAD
$30.00
Terminal Boards:
PCD-39E00-000
Screw Terminal Board Kit containing 40 pin and 50 pin connection cables ***See Product GPIO***
$50.00
Cables & Adapters:
CAB-35-004-1
6" 10 PIN HEADER TO DB9 SERIAL ADAPTER CABLE
$5.00
CAB-35-002-1
6" DB9 TO DB9 EXTENSION CABLE
$10.00
Displays:
E020-30
20 CHAR. X 2 Line LCD Display
$49.00
E020-31
20 CHAR. X 2 Line LCD backlit display
$65.00
E020-32
20 char. X 4 line LCD
$74.00
E020-33
20 Char. X 4 line backlit LCD (EOL, LIMITED AVAILABILITY)
$0.00

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