



Introduction to EDP

The EDP baseboard, or motherboard, is an Extended Eurocard size (220 x 100mm) board that provides four identical "stations" for the plug in modules. The motherboard allows microcontrollers and I/O devices to communicate through a standardised interface similar to PC/104 or STE buses. However, whereas PC/104 and STE tend to support only power-line, data, address and control signals, the EDP interface supports microcontroller applications by also catering for specialist pin functions relevant to typical 8, 16 and 32-bit microcontrollers. There are three I2C channels, two CAN channels, an SPI port, and various signal measurement and signal-generation peripherals. There are also groups of pins to support interrupts in response to external events, groups of pins able to create pulse-trains, others dedicated to motor control, I2S, memory cards and many other common microcontroller IO types. Advanced interfaces such as SD/MMC are also supported. All of these signals are contained within two 0.8mm dual-row connectors of 140 and 100 pins each, called EDPCON1 and EDPCON2 respectively. The EDP motherboard also solves issues such as inter-module and inter-EDP system communications, using available interconnects such as I2C and CAN.

Plug-in Command and Application Modules

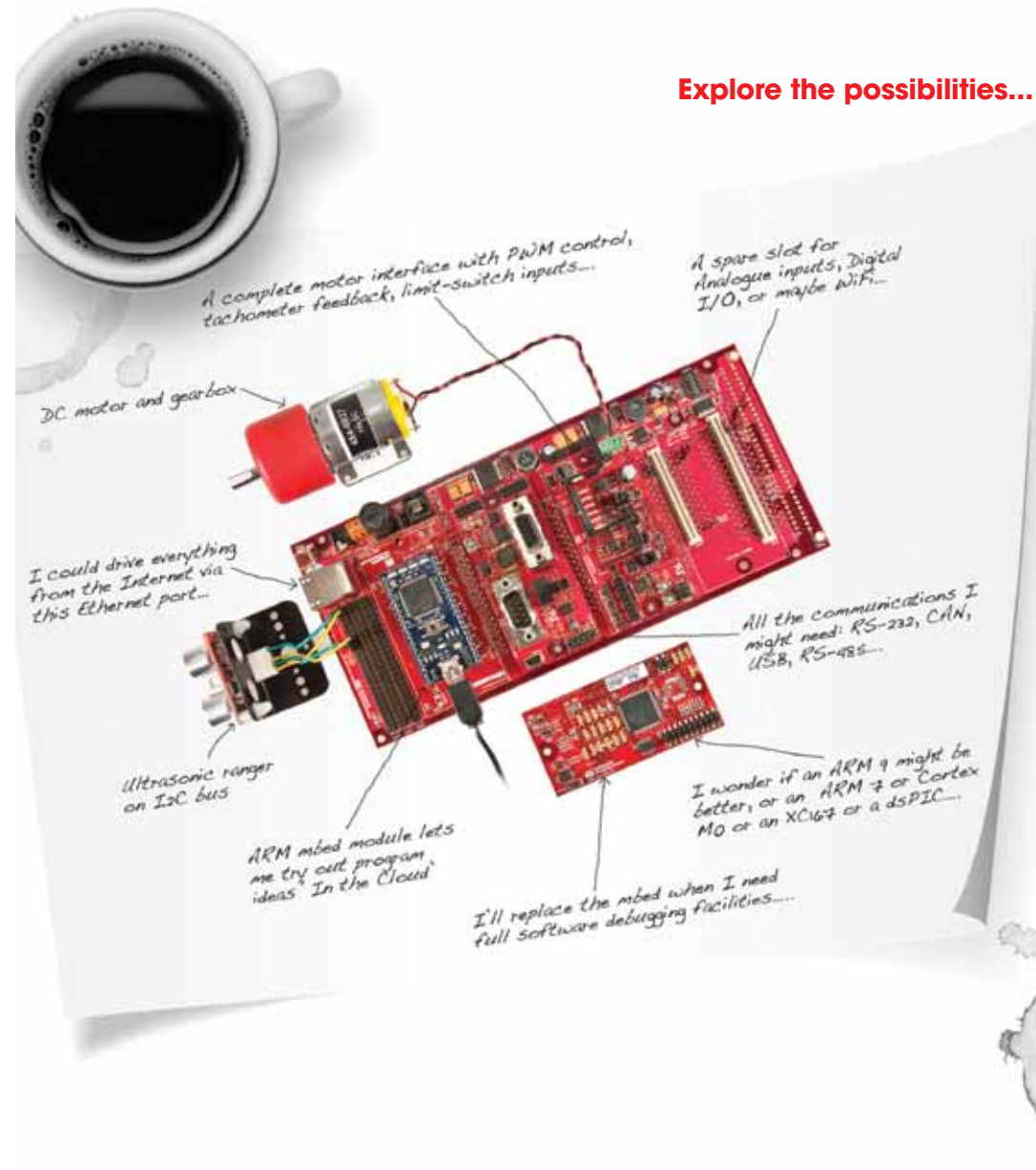
This architecture allows a wide variety of processor modules, based on various microcontrollers, to be built by mapping the device I/O pins onto the EDPCON1 and EDPCON2 connectors. The microcontroller then appears to be a virtual CPU to another I/O device fitted on the bus, such as a digital or analogue peripheral module. It is possible to map almost any microcontroller to this format. The first Command Modules to be introduced for EDP have supported the Infineon XC167, STMicroelectronics STR9, and the Microchip Plug-in Module for microcontrollers and dsPIC devices (PIC-PIM) spanning 8-bit, 16-bit and 32-bit families.

Of course, since the EDP is conceived to provide a configurable platform for proof-of-concept work, its success is also dependent on providing a diverse range of peripheral functions that are also in EDPCON-compatible modules. The first modules to be developed as part of the EDP programme include analogue and digital I/O modules, a communications module, and two motor-control modules.

The EDP modular concept lends itself to the development of an increasing range of application modules going forward. RS is actively pursuing development of new modules; recent announcements include a new SD Card module and plans for modules to enable EDP-based wireless development. Users can also build their own modules, if required, by referring to the EDPCON bus specification.

A key challenge facing embedded systems developers is to build drivers for each of the functions to be implemented. The time taken to write and debug a driver, at the proof-of-concept stage, can delay the project; particularly if the driver will not work. Later in the project, it may be necessary to develop certain drivers further to achieve the full functionality and robustness. EDP solves both of these challenges by including all necessary drivers for each function. Moreover, the drivers are written from the outset to be production ready. Hence, developers can progress their projects without debugging drivers at the initial hardware stage or refining the drivers for production later in the project.

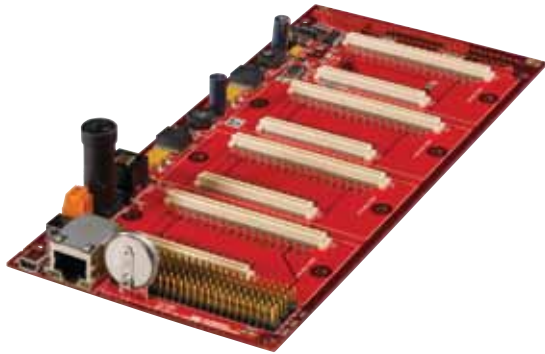
To view the latest modules search online at rswww.com or view the full product range at rswww.com/edp



Explore the possibilities...



The embedded development platform provides design engineers with a flexible and independent modular development kit. There is access to a growing range of microcontrollers and interface modules including ARM mbed and Microchip PIM.



4-Module Base Board

- Extended-Euro card size (220x100 mm)
- High-quality module connectors
- Optional 64-way DIN connector
- +12V fused supply input with noise filter, connection by DC jack or screw connector
- +3.3V and +5V switching regulators
- Optional RTC back-up battery
- RJ-45 Ethernet connector , magnetics & LEDs
- Mini-USB debug connector
- I/O breakout header
- 8 x DIP switches ported onto system I²C bus
- System reset button
- 4kbytes I²C serial EEPROM
- Up to three I²C buses and two CAN networks

Stock No. 460-285

2-Module Base Board

- High-quality module connectors
- +12V fused supply input, DC jack or screw connector
- +3.3V and +5V linear regulators
- Optional RTC back-up battery
- RJ-45 Ethernet connector , magnetics & LEDs
- Mini-USB debug connector
- Optional I/O breakout header
- Optional 8 x DIP switches ported onto system I²C bus
- System reset button
- Optional 4kbytes I²C serial EEPROM
- Up to three I²C buses and two CAN networks



Stock No. 703-9232



LPC1768 Cortex-M3 Module

- 100MHz LPC1768 CPU with 512kB on-chip FLASH memory and 64kB SRAM
- DP83848 PHY Ethernet interface
- Micro-SD card slot

Stock No. 703-9229

LPC1343 Cortex-M3 Module

- 50MHz LPC1343 CPU with 32kB on-chip FLASH memory and 8kB SRAM
- DP83848 PHY Ethernet interface
- Micro-SD card slot

Stock No. 703-9222

LPC1113 Cortex-M0 Module

- 50MHz LPC1113 CPU with 24kB on-chip FLASH memory and 8kB SRAM
- DP83848 PHY Ethernet interface
- Micro-SD card slot

Stock No. 703-9226

LPC2368 ARM 7 Module

- 100MHz LPC2368 CPU with 512kB on-chip FLASH memory and 58kB SRAM
- DP83848 PHY Ethernet interface
- Micro-SD card slot

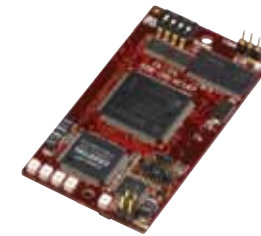
Stock No. 703-9210



STR912 ARM 9 Module

- 96MHz STR912 CPU with 512k on-chip FLASH memory and 96k SRAM
- 64k x 16 SRAM on-board
- CAN bus transceiver with PESD2CAN
- STE100P PHY Ethernet interface

Stock No. 460-297



XC167 Module

- 40MHz SAF-XC167CI-32F40F CPU with 256k FLASH memory
- 64k x 16 SRAM on-board
- CAN bus transceiver with PESD2CAN
- CS8900 Ethernet controller

Stock No. 460-308



ARM mbed Carrier Module

- Takes mbed™ LPC1768 module
- Micro-SD memory card socket
- Header for SparkFun™ LCD-08600 small colour graphics display

Stock No. 703-9235



Microchip PIM Carrier Module

- Most Microchip 100-pin PIM modules will fit this adapter board including the PIC24, dsPIC and PIC32 series of devices

Stock No. 668-6108



Dual BLDC Motor Controller

- Each motor rated up to 4A at 24V
- One dsPIC33 MCU is dedicated to each motor
- Controlled over I²C bus

Stock No. 668-6105



Communications Module

- RS-232, RS-485 and USB connectors
- Optically-isolated CAN
- Real-Time Clock on system I²C bus
- 240 bytes of non-volatile SRAM

Stock No. 460-310



Analogue Input Module

- 2 x channels variable 2-pole filters
- 6 x channels fixed 2-pole filters
- 8 x channels fixed 1-pole filters
- 12 x unfiltered channels
- 12-channel 10-bit ADC on I²C bus

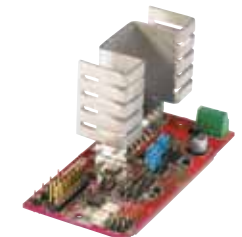
Stock No. 460-281



Digital I/O Module

- 12 x protected inputs
- 16 x TTL inputs via system I²C bus
- 16 x protected outputs, 500mA
- 16 x 25mA logic outputs

Stock No. 460-314



DC Motor Control Module

- Optimized for PWM motor drive
- Current monitoring
- Quadrature encoder input
- Hall sensor input
- Tachogenerator input
- Open/closed limit switch inputs

Stock No. 460-304