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PCI Express Family

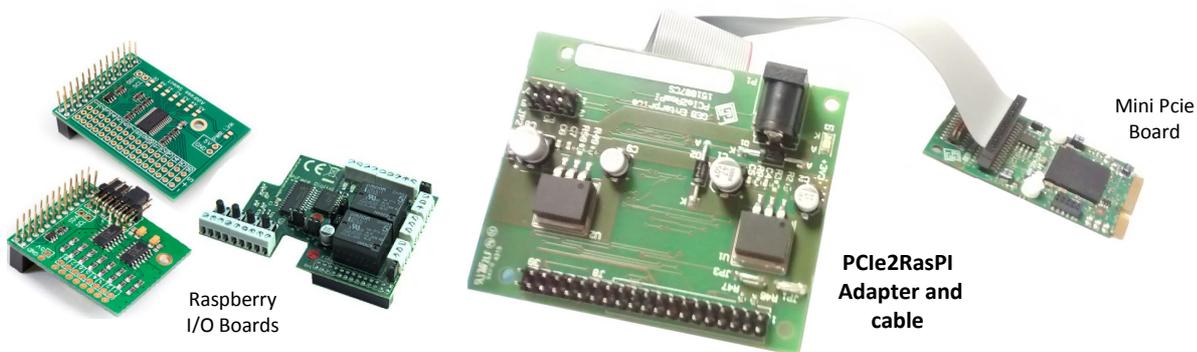
PCIe2RasPI Adapter, hosts the Raspberry PI I/O cards on mini PCIe slot

Overview

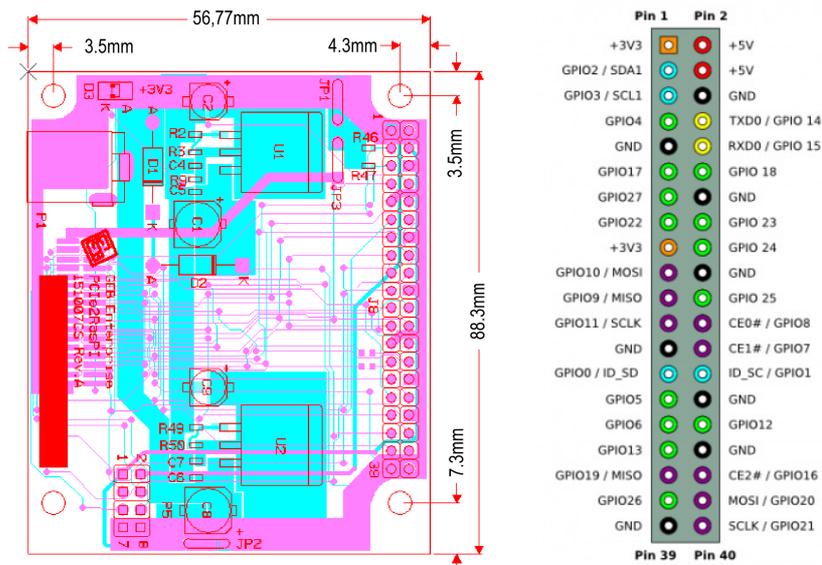
PCIe2RasPI adapter makes able the embedded PCIE motherboards to host all Raspberry I/O boards.

The PCIe2RasPI adapter, connected on the mini PCIe I/O connector and the programmable FPGA make available the same pins function available on the Raspberry and much more... the extras available pins can be used to give functionality and speed what cannot be reached with software implementation on the Raspberry CPU.

In fact, when a mini PCIe Fpga card is connected to an embedded PC motherboard, it adds FPGA programmable high bandwidth I/O and DSP capability at a low cost, making it ideal for equipment in many fields of application, such as electro medical, automation, data players and recorders and so on.



The PCIe2RasPI adapter routes the FPGA I/O pins to the standard Raspberry 40 ways J8 I/O connector, compatible A+, B+ and B2 versions. The peripherals that can be loaded on FPGA emulates the Raspberry Peripherals allowing the running of PC software under MS-Windows or Linux.



Obviously, FPGA can host a superset of Raspberry interfaces, on all the connector pins you can override the standard pin and set lot of different interfaces such as synchro, encoder, pwm, sio, spi, i2c, or also high-speed fifo. For instance, we can have 24xPWM channels or 8xPWM+ 8xI2C + 8xSPI.

Development tools

Many applications can be developed using the FEWE (*1) tool (Fpga Easy Web Editor) a GEB Enterprise Free tools that allows the users to customize the own application starting from some template created by GEB. User defined templates can be requested to GEB using the related template specification form. Fpga contents can be developed also using the traditional Altera QuartusII flow or asking for a customization to GEB Enterprise.

The related development kits make available all that you need to develop both Fpga design under Altera QSYS and the application program using provided Microsoft Windows or Linux drivers.

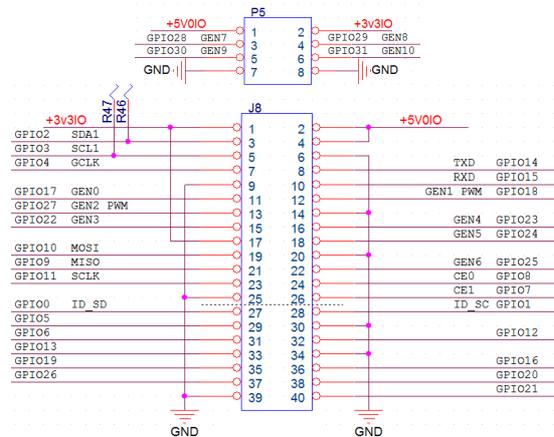


Pcie2RasPi Connectors

The Pcie2RasPi adapter hosts two connectors compatible with the Raspberry module:

- J8 I/O connector, male, 40 ways, 2.54mm pitch, compatible A+, B+ and B2 versions.
- P5 I/O connector, 8 ways, 2.54mm pitch, with 4 additional GPIO.

All I/O signals are LVTTTL compatible ($V_{oh(max)} < 3.0V$, $V_{oh(min)} < 2.4V$, $V_{ol(min)} \leq 0.4V$) non 5 Volt tolerant.



Pcie mini Interface Board



The standard Mini PCIe form factor is ideal for many kinds of applications; it is present on many compact PC motherboards such as Intel Galileo and Advantech MIO-5250

The PCIEM-15-IO standard (P/N 100801A3) hosts an Altera Cyclone IV GX EP4CGX30BF14C6N FPGA and two I/O connectors that bring out 53 LVTTTL compliant I/O FPGA pins and 3 clocks signal that can be used to interface synchronous applications. The low cost PCIEM-15-IO (P/N 100801A1) version hosts an Altera Cyclone IV GX EP4CGX15BF14C8N Fpga.

Ordering Information

Product Name	GEB Code	Description
PCIE2RasPI	151007A1	Adapter board from the PCIem connector complete with a 20cm FFSD cable (for Pciem J2 connector)
PCIEM-15-IO	100801A1	Fpga EP4CGX15BF14C7N. J1 Connector FTS-113-01 match with Samtech FFSD Cable. J2 FTS-117-03 match with Samtech CLP Connectors.
PCIEM-15-IO	100801A3	Fpga EP4CGX30BF14C6N. J1 Connector FTS-113-01 match with Samtech FFSD Cable. J2 FTS-117-03 match with Samtech CLP Connectors.
MBBA	100997A1	USB Blaster to Mini USB Blaster Connector Adapter.

Notes:

- [1] The FEWE is coming soon tool who will effort able everybody to reprogram and redefine the PCIe I/O pins either in the standard RaspBerry configuration or in the available I/O supersets. You can have a one free Year license requesting it by e-mail to a.debra@gcb-enterprise.com.



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