Raspberry Pi peripherals use optimised USB interface ICs

ECN Europe

FTDI [1] has added to its range of connectivity offerings with two new products that address the rapidly growing popularity of the Raspberry Pi (RPi) computing platform. The TTL-232R-RPi is a USB-to-TTL Serial UART debug cabling solution that incorporates the company's FT232RQ high performance interface IC. This is complemented by the RPi USB Hub Module, which is designed to connect to an RPi unit and expand the number of interfaces that can be accessed downstream from a host.

[2]

RPi is a simple, ultra-low cost computer board aimed at inspiring youngsters to learn the fundamentalprinciples of programming. Running the Linux operating system, with a compact format that is the size of a credit card, it uses a 700 MHz ARM-based processor and has a 256 MByte SDRAM memory.

Through FTDI's debug cable it will be possible for laptop/desktop PCs to interface with the RPi board and perform in-depth analysis on the software application being developed. The 1 m long cable connects directly to the RPi's serial port. This port will output kernel debug messages to be acquired by the PC.The FT232RQ USB-to-Serial UART interface IC within the TTL-232R-RPi cableprovides a USB to asynchronous serial data transfer path capable of supporting data rates from 300 bits/s to 3 Mbits/s at 3.3 V TTL levels. The chip handles all the USB signalling and protocol requirements.

The RPi USB Hub Module utilises an USB-to-UART/MPSSE IC, along with a GL850G

USB hub controller IC. It provides engineers with up to 4 downstream USB 2.0 Hi-Speed (480Mbit/s)ports.Asynchronous serial data transfer rates from 300 bits/s to 12 Mbits/s at 3.3 V TTL levels are supported, while synchronous serial data rates of up to 30 Mbits/s can be dealt with on JTAG, SPI and I^2C interfaces. The module has dimensions of 33.45 mm x 65 mm.

“The RPi concept has huge potential to nurture aspiring young engineers. Supporting it with a highly optimised debug solution is a vital part of achieving that goal. The TTL-232R-RPi enables a fast, simple way to connect with an RPi and examine what is going on when it runs a newly constructed program. Furthermore, the USB Hub Module gives a greater degree of flexibility to RPi based system designs. Both products make use of the expertise in USB conversion that FTDI’s technical team possesses,” states Fred Dart, CEO and founder of FTDI. “The RPi philosophy seems very similar to that of FTDI – making things as uncomplicated as possible so that the creativity of pupils/students is encouraged,” he concludes.

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