Size 3 Tibbo Project PCB (TPP3)

Introduction

Size 3 Linux Tibbo Project PCB (LTPP3) comes preloaded with our own, highly polished distribution of Linux that is derived from the Red Hat line and is updated with the latest and greatest kernel and drivers.

LTPP3 is ideal for applications that require no human-machine interface (HMI) while calling for a significant number of I/O lines and/or functions.

Offering 7 tiles for a total of 14 "M" and 14 "C" sockets, the LTPP3 can be used to construct devices with up to four full serial ports, up to 26 relays, or up to 51 opto-inputs, PWM, or open-collector outputs.

Further, the generous number of available Tibbit sockets means you can increase your system's versatility by offering multiple power supply options, such as +5V, +12V, PoE, etc. You can also install multiple power supply Tibbits to increase total available power or provide power redundancy.

This product can be used as a bare board, or assembled into a size 3 Tibbo Project Box.

Hardware features

•Based on 1GHz Cortex-A8 Sitara CPU from Texas Instruments.

•10/100BaseT auto-MDIX Ethernet port (automatic detection of "straight" and "cross" cables).

•7 tiles (14 x "M" + 14 x "C" sockets, 51 control lines):

- Four "M" sockets with UART capability:

> Baudrates of up to 921,600bps;

> None/even/odd/mark/space parity modes;

> 7/8 bits/character modes;

> Full-duplex mode with optional flow control;

> Half-duplex mode with direction control;

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> Encoding and decoding of Wiegand and clock/data streams*.

- Two "M" sockets with CAN capability;
- Eight "M" sockets with interrupt capability;
- One "M" socket with PoE capability.
- One "M" socket with MMC (SD card) capability.
- Two adjacent "M" sockets with audio capability.
- One special "C" socket with USB capability.

•Optional Wi-Fi interface (requires the LW1000 add-on module*).

•Optional GPRS interface (requires Tibbit #47).

•Onboard buzzer.

•Optional 96KHz stereo audio line out, mic in (requires Tibbit #48)*.

•RTC with dedicated backup supercapacitor.

•512MB DDR3 SDRAM.

•512MB NAND flash.

•Optional micro SD card slot (requires Tibbit #49)*.

•2048-byte EEPROM for data storage.

•Eight onboard LEDs:

- Green and Red main status LEDs;
- Yellow Ethernet link LED;
- Five blue LEDs (can be used for Wi-Fi signal strength indication or any other purpose).

•Automatic on-demand CPU speed throttling.

•Reliable power-on/ brown-out reset circuit.

•Power: 500mA @ 5V (full speed, 100BaseT mode).

•Dimensions (LxW): 165x94mm.

•Operating temperature range: -40 ~ +70C.

•Internal software is upgradeable from a TFTP server.

**Future functionality/availability*

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Four ways to use the LTPP3 board

(1) Use LTPP3 with Embedded AggreGate

The board can be purchased with an Embedded AggreGate license. Serving as the board's execution environment, AggreGate lends LTPP3 its immense power of data collection, processing, and visualization. Further, AggreGate provides a uniform, consists access to external data, devices, and systems using more than 100 supported communications protocols. Via a specially designed middleware C library, Embedded AggreGate is also able to access the board's hardware resources, such as GPIO lines, serial ports, as well as Tibbit blocks installed in board's sockets.

(2) Run Node.js applications*

LTPP3 comes with Node.js preinstalled. We are currently developing node.js modules for accessing the board's hardware resources and installed Tibbit blocks. You can also utilize many existing node.js modules, such as *serialport* and *socket.io*.

(3) Run Tibbo BASIC/C applications*

Tibbo is currently porting its popular Tibbo OS (TiOS) to Linux. When this work is completed, you will be able to run TiOS as a Linux application and execute existing Tibbo BASIC and Tibbo C code with little or no modifications. Needless to say, the new LTPP3 board crunches Tibbo BASIC and C apps at unparalleled speeds.

(4) Or use LTPP3 as generic Linux platform...

... that comes in an attractive housing and may be extended with Tibbit blocks.

* *Future functionality/availability*