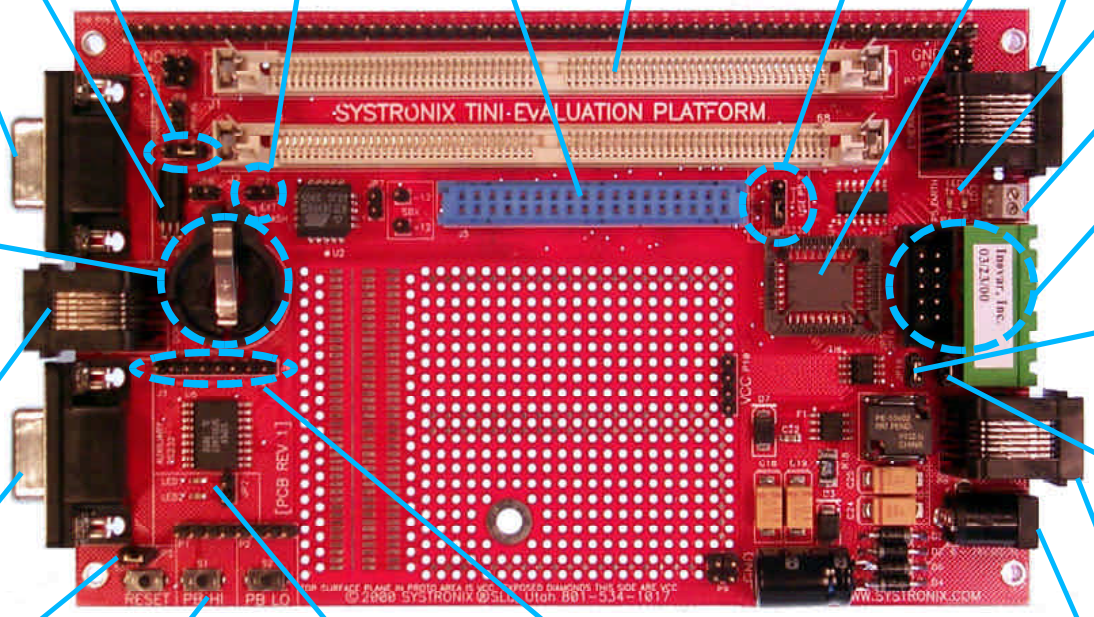
Systronix Rev1 STEP and STEP+ Quick Reference

The most commonly used jumpers and I/O connections are shown here. Uninstalled or seldom used jumpers and connection points are not identified. For more I/O details, please refer to the STEP schematics and sample code. The latest version is available at www.systronix.com



External 1-Wire Vpp
default: Vpp tied to Vcc

Ext Flash Enable
default: not installed

SIMM Sockets
Upper: SIMM72 or 68
Lower: SIMM68

JP4 TINI Serial 1
TINI serial1 drives either external 1-wire or STEP COM1 RS232.
default: upper (1-wire) - see notes

Boot Flash
Socket for optional 55 nsec 128K or 512K external boot flash device (not installed).

Ethernet 10BaseT
see cable notes

DS1820 (STEP+)
1-wire temperature sensor

SBX Expansion

CAN Activity LEDs
CAN RX and TX

CAN Shield Ground
not used, no longer installed

STEP COM0
Primary RS232, used by TINI Boot Loader and JavaKit. Wired as DCE. This is the default UART common to most 8051s.

CAN
5-way pluggable screw terminals and 5x2 header for Control Area Net

iButton Clip
For iButton devices, connected to TINI external 1-wire network

CAN Power Option
default: present, not installed

External 1-Wire
Dallas 1-Wire network, also accepts Blue Dot RJ11

CAN Termination
default: installed

STEP COM1
RS232, available for your application. Wired as DCE.

Debug RS232
not used, no longer installed

DTR Reset Enable
Permits DTR on COM0 to reset TINI. Used by JavaKit.
Default: installed

Pushbuttons
STEP Reset. Hi and Lo for development.

LEDs
Light when pins to right are driven low

Analog Inputs (STEP+)
4 inputs to DS2450 converter.
+ − D + − C + − B + − A

Power Input
8-24 VDC/AC, 5.5x2.5mm jack (center + or -)

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Quick Reference Notes

TINI Installation - install a TINI module in the lower socket. If lower socket SIMM ethernet pins are bussed up to the upper SIMM68 or SIMM72, you can connect a TINI in the upper (auxiliary) SIMM socket.

Ethernet is 10BaseT on an RJ45. Pins 1 and 2 are TX and pins 3 & 6 are RX. Use a straight cable to a hub. Use a crossover cable if connecting to a PC's ethernet port directly. Connect only to a 10 MBit or mixed 10/100 MBit network, do not connect to a fixed 100 MBit network.

Primary RS232 is used by JavaKit to load the flash memory and configure the ethernet port of TINI. Wired as DCE so use a straight through cable (not a null modem) to your PC. Step-by-step instructions are on our web site.

TINI Signal Loading TINI has drive capability for about four more CMOS loads on the address and data lines. Overloading TINI's bus will cause erratic operation (or prevent any operation at all).

Development LEDs are located just above the PB HI and PB LO pushbuttons. Each LED has a .025 square post to its right. A low level sinking 2 mA on this post will turn the LED on.

Pushbuttons HI and LO are available for your development use. Each pushbutton is connected to the four .025 square posts above it.

Power Supply is 8-24 volts, DC unregulated or AC. The input jack is 5.5 x 2.5 mm, center positive or negative. STEP uses an efficient, wide input range switching supply. STEP with no added components will use about 300 mA max at 7 volts input. Supply current decreases nearly linearly as supply voltage increases due to the power conversion in the regulator. Recommended power includes the Systronix 1A 12 VDC cube. The regulator can supply at least 500 mA for additional components or expansion cards.

Prototype Area has exposed VCC diamonds on the board top, and GND diamonds on the bottom.

Analog Inputs (STEP+ only) please refer to the DS2450 data sheet available at www.dalsemi.com. + inputs are 5.12 volts max, - inputs are board ground.

CAN Power: As a development convenience, you can power two or three STEP boards from one power cube. Install the CAN power jumper on all boards, and connect one board to a 9-12 VDC 1A power source. The other boards will then receive their raw power over the CAN network. Individual boards can also be powered from a powered CAN net. Caution: there is no optical isolation from STEP to the CAN net - do not power STEP or connect it to a CAN net which is intended to include optical isolation.

1Wire Net or Auxiliary RS232: JP4 controls the function of the auxiliary serial port on STEP. It can be RS232 level serial I/O on the lower DB9 connector (wired as DCE) or Dallas 1Wire network on P7 (the RJ12 connector between the serial DB9 connectors). JP4 has two positions:
JP4 position 1-2 (top): signal PCE3(L) (P5.7 configured as an I/O pin) determines whether serial port 1. When P5.7 is high, communication is through the external 1-wire bus.
JP4 position 2-3 (bottom): serial port 1 is auxiliary RS-232 output. The external one wire bus is not active. P5.7 has no control over 1Wire vs RS232 with the jumper in this position.

Tutorial & Examples: www.systronix.com

An ongoing tutorial and sample programs are available on our web site at www.systronix.com.

Initializing and Programming TINI requires a number of software programs which must be installed and used in a specific sequence. Full details, including a step-by-step tutorial are available on our web site at www.systronix.com.

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How Do I?

Boot from External Flash - If you want to boot from external flash and bypass the TINI Java JVM, you can do that. Install the "Ext Flash Enable" jumper. Install a 55 nsec Atmel AT49F010 (128 KBytes) or 040 (512 KBytes), or AMD 29F series device in the PLCC32 socket location U1. This device must contain valid 8051 code or a copy of an 8051 boot loader. See the Tini Tips area on our web site, Quick Start section, for an example of how to use this socket to restore the boot loader in a completely erased TINI.

Spare and Optional Parts

• SBX connectors and SBX prototyping and expansion boards are available from Systronix and other vendors.

• CAN net connectors are available from Systronix. A CAN high-level protocol is also under development.

• Ethernet straight and crossover cables, hubs, and RS-232 serial cables and adapters are available from Systronix.

• TINI Java modules (now) and TINI expansion modules (future) are available from Systronix.

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