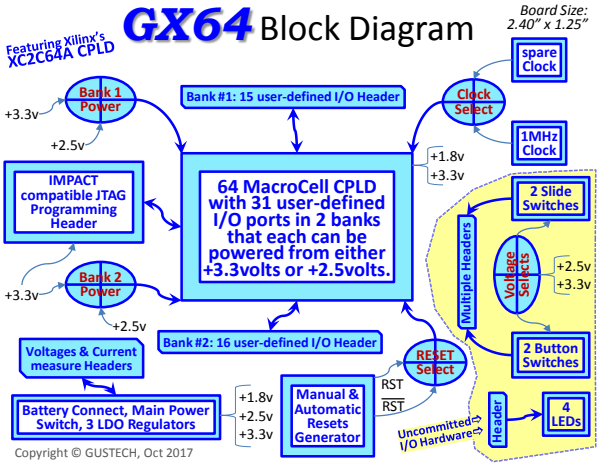
GX64 CPLD Design-Test-Platform Data Sheet

The GX64 Design-Test Platform Board is a self-contained, multi-purpose hardware tool designed for evaluating and improving configurable hardware circuit functions piece-wise or in total, including emulating functional performance of VHDL modules beyond that of simulation exercises. It supports most feasible features and functions of Xilinx's XC2C64A Complex Programmable Logic Device in the CoolRunner-II family, with a plethora of on-board support circuits, so circuits can be implemented immediately without the need for any other parts.



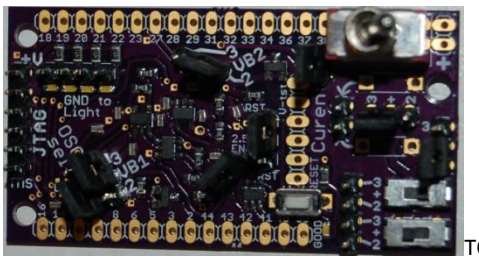
ON-BOARD SUPPORT CIRCUITS:

- **XC2C64A** (64 macrocells) CPLD in VQ44 package
- Battery or Power Supply: wide Vin: 3.4Vdc ⇆ 5.5Vdc via 2 wiring holes, with main Power Toggle Switch
- Total Current-Measurement Header for ammeter or voltage-drop current shunt resistor
- +3.3Vdc LDO Regulator @ 250mA$_{max}$ {TPS73201}
- +2.5Vdc LDO Regulator @ 250mA$_{max}$ {TPS73201}
- 2-pin header for +2.5Vdc regulator Enable
- +1.8Vdc LDO Regulator @ 250mA$_{max}$ {TPS73201}
- Header for selecting I/O Standard for 15 ports of Bank #1: LVTTL, LVCMOS33, LVCMOS25, or LVCMOS18
- 15 holes for headers accessing Bank #1 I/O ports
- Header for selecting I/O Standard for 16 ports of Bank #2: LVTTL, LVCMOS33, LVCMOS25, or LVCMOS18
- 16 holes for headers accessing Bank #2 I/O ports
- One installed MEMs 1MHz Oscillator; & location for a second oscillator, and header for choosing either, or running from an external clock source, with over-voltage protection {MAX7375}
- Dual-Polarity Power-On-Reset, 200mS time-delay, manual push-button reset, a header for selecting polarity, voltage supervisor, and main power-GOOD LED indicator, with over-voltage protection {MCP1319M}
- "iMPACT" JTAG Configuration Header {REFERENCE = +3.3V}
- 6 holes for headers for monitoring all of the power supply voltages and for powering external circuits

MORE ON-BOARD UNATTACHED SUPPORT CIRCUITS:

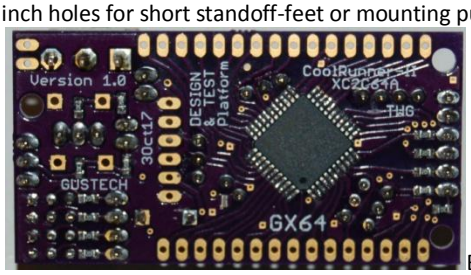
- Two separate push-buttons, ground-on-push, each pulled high to either +2.5Vdc or +3.3Vdc, header selectable (no +1.8Vdc support here)
- Two separate slide-switches, ground or "high, each pulled high to either +2.5Vdc or +3.3Vdc, header selectable (no +1.8Vdc support here)
- Four low-current individual LED indicators via holes-for-header, ground (low) to illuminate

GX64 PRINTED CIRCUIT BOARD ASSEMBLY:



TOP VIEW

Shown near actual size: 4-Layer FR4 Board is 2.40" x 1.25", just 3.0"^{2}; it was designed using EAGLE PRO Tools. The CPLD itself is mounted on the bottom of the board. There are three 1/8th inch holes for short standoff-feet or mounting purposes.



BOTTOM VIEW

BUILD-TO-SUIT:

The SOT23 footprint for both Oscillators are for the Maxim MAX7375 family. The pictured (*above*) GX64 includes a 1MHz oscillator and a spare location for another one. The MAX7375 family includes other frequencies that could be installed, including: 1.84MHz, 3.58MHz, 3.69MHz, 4MHz, 4.19MHz, and 8MHz. The GX64 can also be provided without an oscillator installed at either provided location for those wishing to provide their own external clock signal to the CPLD.

There are many options regarding the 31 I/O port connections:

- no headers for direct-wiring to other system modules as when the GX64 is embedded into another system, as shown above
- male headers accepting female-wire-sockets
- female headers accepting male-wire-pins
- various combinations of these as needed

USER MANUAL

There is a GX64 User's Manual available that covers many more details about various options, features, and functions.

BLANK BOARD

For those who love to solder and create their own variations, the Blank GX64 Printed Circuit Board is available unpopulated, with schematics and assembly drawings, for those wanting to personalize their own GX64 to their specific needs. These boards were/are fabricated by OSH Park to their design rules.