

## OVERVIEW

The **TS-7800** is a **RoHS** compliant Single Board Computer (SBC) based on a Marvell **500MHz ARM9** CPU with internal **PCI** bus and that provides a standard set of on-board peripherals such as **Gigabit Ethernet**, dual **SATA** and dual **High-Speed host/slave USB 2.0**.

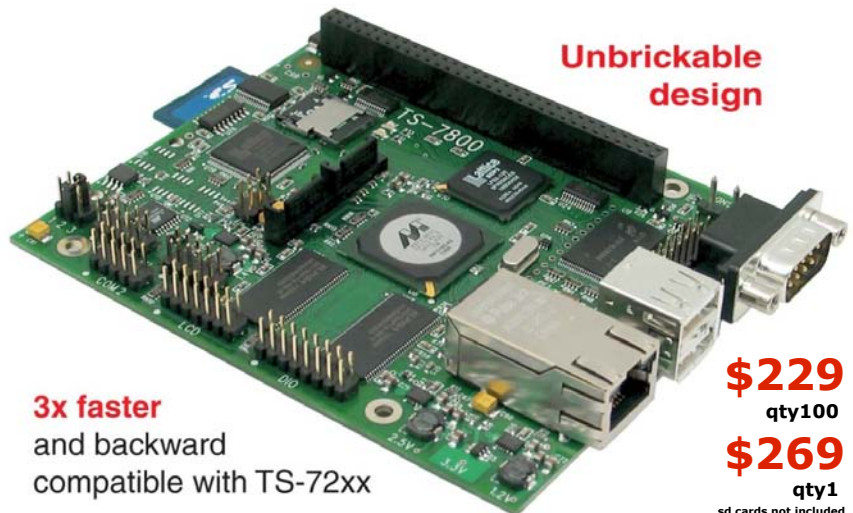
The TS-7800 also features a **12,000 LUT** on-board **FPGA** which is user-programmable via Linux software and provides extra peripherals such as **110 GPIO** lines and additional serial ports.

On the software side, the TS-7800 uses an in-house improved **Linux 2.6** Kernel that allows **2 seconds** bootup and provides driver support for all on-board hardware. In addition, the **512 MB on-board Flash** enables a full **Debian** distribution to be installed with a complete embedded development environment.

The TS-7800 is backward **compatible** with our TS-72xx computers, providing **3 times** more performance and higher-end features with identical footprint, thus allowing quick platform migration for customer applications.

## FEATURES

- **500Mhz ARM9 CPU**
- Internal **PCI** bus, **PC/104** connector
- **12,000 LUT** user-programmable **FPGA**
- **128MB DDR-RAM**
- **512MB NAND Flash**, high-speed (**17MB/s**)
- **2 SD socket** (1 micro-SD, 1 full-size SD)
- **2 SATA** ports
- **2 USB 2.0 480Mbps** host/slave ports
- **Gigabit Ethernet**, **10/100/1000** speeds
- **5 10-bit ADC** channels
- **10 serial ports**, 2 optional **RS-485**
- **110 GPIO** (86 arranged as a **PC/104** bus)
- **Sealed-battery backed RTC**
- **Matrix Keypad** and **Alphanumeric LCD** interfaces
- **Fanless: -20° to +70°C**
- **Optional on-board Temperature Sensor**
- **Low power 4W@5V**
- **Sleep mode uses 200 microamps**
- **Optional 8-30V input** voltage range (default is **5V**)
- **Boots to a Linux shell-prompt in < 2 seconds**
- runs **Kernel 2.6** and **Debian Linux** by default



## FAST BOOTUP FIRMWARE

The TS-7800 bootstrap uses a unique and clever combination of **FPGA** hardware logic, specific boot-up firmware and **Kernel** tweaks which ensure fast boot time, security, high board recoverability and more:

- **Linux-based bootloader** boots **Linux 2.6** kernel to shell-prompt in less than **2 seconds** after power-on from either **SD card** or on-board **Flash**
- Full **Debian** can be installed into on-board **Flash** from a **USB flash dongle** - no need for **Busybox**
- **Unbrickable** design ensures **100%** recoverability from **SD card** in case of on-board **Flash** erasure

## 12,000 LUT FPGA

- **Linux utility** loads **FPGA** from user file in **0.6s**
- Connects to **CPU** via **50Mhz local PCI** bus
- **Default load** uses **GPIO** pins as a **PC/104** bus
- Additional **FPGA** file available for an external **PCI** bus using overridden **PC/104** bus pins

## LINUX 2.6 AND DEBIAN

The TS-7800 is shipped with **Linux Kernel 2.6** and the **Debian** distribution on on-board **Flash**, enabling a wide range of server services, desktop-like applications and developments tools to run on a **embedded real-time** system.



**We have been in business over 20 years!**

We've built our business on **excellent products, low prices and exceptional support**. We sell a wide variety of off-the-shelf **PC/104 SBC's** and peripherals, and offer custom configurations and designs with excellent pricing and turn around time.

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