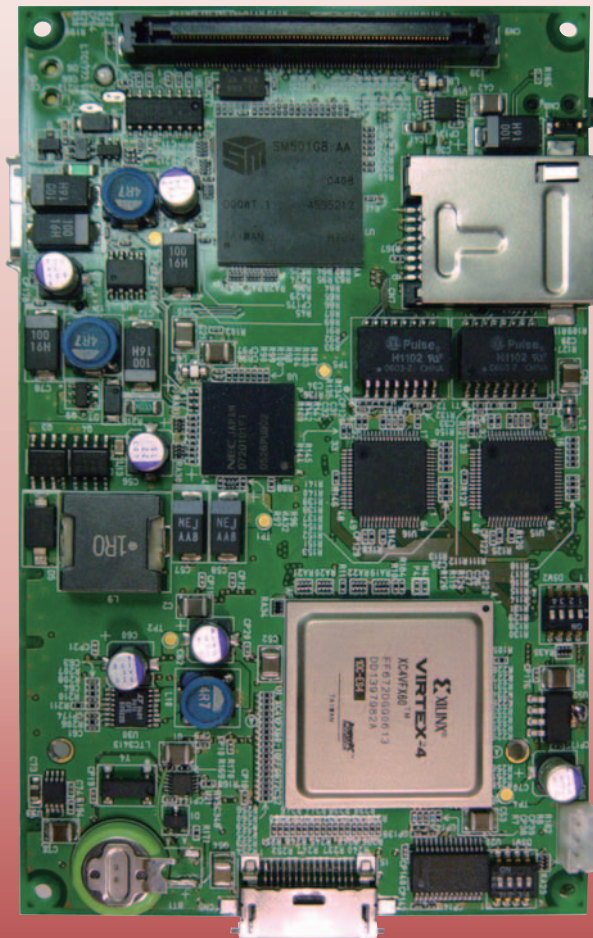


# T-Engine/PPC-V4FX Development Kit

## An Open Development Platform for Embedded Systems



The CPU Board of the T-Engine/PPC-V4FX Development kit (in full-scale)

If you have any questions, please feel free to contact us.  
E-mail: [te-sales@personal-media.co.jp](mailto:te-sales@personal-media.co.jp)

CPU Board	
CPU	Xilinx Virtex-4FX60 PowerPC 405 (300MHz) Free logic cell: 35,000LCS (350Kgate)
Flash Memory	16 MB
SDRAM	128 MB
Input/Output I/F	USB (host), PCMCIA slot, Serial port, eTRON chip I/F, Headphone output, Microphone input, Expansion bus (PCI compatible)
Others	RTC, analog RGB output, LAN (2port), JTAG-ICE I/F
Power Supply	AC adapter
Dimensions	120 x 75 mm (4.724 x 2.953 inch, excluding protrusions)
LCD Board (Optional)	
Specification/Resolution	TFT, Color, 240 x 320 dot
Others	Touch panel, Key switches (3), Infrared input port
Dimensions	120 x 75 mm (4.724 x 2.953 inch)

## PRODUCT SPECIFICATION

### Supplied Software

#### For T-Engine target board

- PMC T-Monitor
- PMC T-Kernel
  - T-Kernel/OS, T-Kernel/SM, T-Kernel/DS
- PMC T-Kernel Extension
  - File management functions, CLI (Command Line Interpreter), PC card manager (bus driver), USB manager (bus driver)
- Device drivers: source code included
  - Clock (RTC), console (serial), system disk (ATA card, USB), KB/PD (Keyboard, Touch panel, Mouse), Screen (CRT, Optional LCD)
- Sample applications: Source code included
  - Simple Hard Disk Partitioner (hdpart), Disk Format (format), Compare Files (cmp), Disk Dump (dd), Simple Editor (ed)

#### Note:

- Customers are allowed to execute the above software on T-Engine/PPC-V4FX Development Kit only. If the above software are executed on another hardware (or embedded in a final product), a separate license is required. Please contact us for further information.
  - Among software shown above, the copyright to T-Kernel, the standard real-time OS for T-Engine, is held by the T-Engine Forum (<http://www.t-engine.org/>).
- The T-Kernel program, including source code, has been made open to the public by the T-Engine Forum. Anyone who agrees to the conditions set forth in the T-License is free to use it, including incorporation in end products. Note, however, that the T-Kernel offered by the T-Engine Forum lacks MMU support. The addition of MMU support is necessary in order to run the PMC T-Kernel Extension, for realizing file management and virtual memory, or in order to run other middleware such as the PMC T-Shell with its GUI functionality. Personal Media offers the PMC T-Kernel with these and other enhancements.

#### For development machine

- GNU development environment with source code GNU based development environment running on PC-based Linux and Windows (Cygwin), including GDB source debugger.
- GUI integrated development environment: Eclipse for PMC T-Kernel  
(Free download for the registered user)

### Main Package Details

- Hardware
  - A standard T-Engine specification CPU board with Xilinx Virtex-4 FX60 PowerPC405
  - Connector Board  
(LAN RJ-45 x 2port, 15-pin VGA, JTAG-ICE I/F, JTAG-FPGA I/F)  
The display and serial cable for PC can be connected to this board
  - AC adapter
  - RS232C (serial) cable
- CD-ROM
  - T-Kernel and other software and various documentation
- Others
  - Packing list, Software License Agreement, etc.

### Optionals

#### LCD Board for T-Engine/PPC-V4FX

An LCD board which connects to the CPU board of the T-Engine/PPC-V4FX Development Kit.

#### T-Engine Development Bench (acrylic board + portable cover)

#### Dedicated Connectors for Extension Bus of T-Engine/μT-Engine

#### LAN Extension Board

Drivers and TCP/IP software are not included, use "PMC T-Shell/PPC-V4FX Development Kit"

#### PMC T-Shell/PPC-V4FX Development Kit

An assortment of GUI middleware, TCP/IP, Script Language "MicroScript", and others.

### System Requirements for GNU Development Environment

- PC/AT compatible Linux
  - Confirmed package: RedHat Linux 7.1 / 7.3 / 8.0 / 9.0, Red Hat Professional Workstation.
- Windows (Cygwin)
  - Confirmed package: Cygwin on Windows XP Professional

### Documentation

The following documentation are being supplied in electronic files:

- Development Kit User's Manual
- Library Manual
- Device Driver Manual
- T-Kernel Extension Manual
- GNU Development Environment Manual
- GNU Development Environment Manual (for Windows)
- T-Monitor Specification
- T-Kernel Specification
- T-Monitor/T-Kernel Implementation Specification
- Hardware User's Manual (circuit diagrams provided)

### Reference Books and Related Information

- T-Kernel Kumikomi Programing Kyokasho (A Practical Guide to T-Kernel Embedded Programing), Ken Sakamura (Ed.), 4200yen.
- T-Kernel Standard Handbook, Ken Sakamura (Ed.), 3800yen.  
\* English documents are included as PDF files on CD-ROM.
- T-Engine, T-Engine2, T-Engine3 (TRONWARE extra edition), 1600yen (each).
- TRONWARE Vol.1-109 (TRON bimonthly magazine, scheduled to be continued), 1200yen (ordinary issue).
- μITRON 4.0 Standard Guidebook, Ken Sakamura (Ed.), 3200yen.  
\* The above books are published by Personal Media Corporation in Japanese. Tax is not included.
- T-Engine Forum <http://www.t-engine.org/>
- TRON Project <http://www.tron.org/>
- Personal Media Corporation (T-Engine Solution Website) <http://www.t-engine4u.com/en/index.html>

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- For details and price, please contact us.

- TRON is an abbreviation of "The Real-time Operating System Nucleus".

- eTRON is an abbreviation of "entity and economy TRON".

- TRON, eTRON, T-Engine, μT-Engine, T-Monitor, and T-Kernel are specified terms for computers, and are not product names.

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