

# ***KIT-V831-TP***

**User's Manual**

***RealTimeEvaluator***

Revision History

Rev.1.0 April 26,1997

1<sup>st</sup> edition



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## **1. OVERVIEW**

**KIT-V831/2-TP** is a product to use RTE-100-TP. It is an In-circuit emulator for NEC's RISC processor, V831 and V832 by using KIT-V831/2-TP and RTE-100-TP together.

Please read a User's Manual of RTE-100-TP together.

This product comes with the following components. First check that none of the components are missing.

- |                             |   |
|-----------------------------|---|
| 1. RTE for Win32 Setup Disk | 1 |
| 2. User's manual            | 1 |
| 3. License sheet            | 1 |

## 2. HARDWARE SPECIFICATIONS

### Emulation

Target device	V831/2
RTE-PC	RTE-100-TP
Emulation functions	
Operating frequency	V831:100 MHz (max.),V832:143MHz(max.)
Interface	JTAG/N-Wire
Break functions	
H/W break points (execution addresses)	2
S/W break points	100
Breaks that can be set using access events	4
Step breaks	Supported
Manual breaks	Supported
Trace functions	
Trace data bus	4 bits
Trace memory	4 bits x 128K words
Trigger that can be set using an execution address	1
Start that can be set using an execution address	1
Stop that can be set using an execution address	1(only V832)
Trace delay	0 - 1FFFFh
Trace clock	66 MHz (max.)
Data trace conditions	2
Disassembled trace data display function	Provided
ROM emulation functions	
Memory capacity	4 M-Byte
Access time	50 ns
Number of ROMs that can be emulated	
DIP-32pin-ROM (8-bit ROM)	4 (max.)
DIP-40/42pin-ROM (16-bit ROM)	2 (max.)
STD-16BIT-ROM connector	2 (max.)
Types of ROMs that can be emulated	
DIP-32-ROM probe(bits)	1M, 2M, 4M, 8M (27C010/020/040/080)
DIP-40-ROM probe(bits)	1M, 2M, 4M (27C1024/2048/4096)
DIP-42-ROM probe(bits)	8M, 16M (27C8000/16000)
Bus width specification (bits)	8/16/32
Target ROM capacity (bits)	512K, 1M, 2M, 4M, 8M, 16M(*1)
Pin mask functions(*2)	INT00-03/10-13, NMI, RESET, HLDRQ

\*1 An 8-bit ROM probe supports ROMs of up to 8M bits.

\*2 Depends on the CPU specifications.

### Host system and interface

Item	Description
Target host machine	PC 9800 Series and DOS/V PCs
Debugger	GHS-Multi, Partner/Win (Windows95/98/NT)
Interface	PC card Type II (version 2.1 of the PCMCIA specifications/version 4.2 of the JEIDA specification or later) PC 9800 (C bus), PC/AT (ISA bus and PCI bus), or LAN-BOX
Power supply	AC adapter (in: 100 V out: +5 V, 2A)

### 3. RTE FOR WIN32

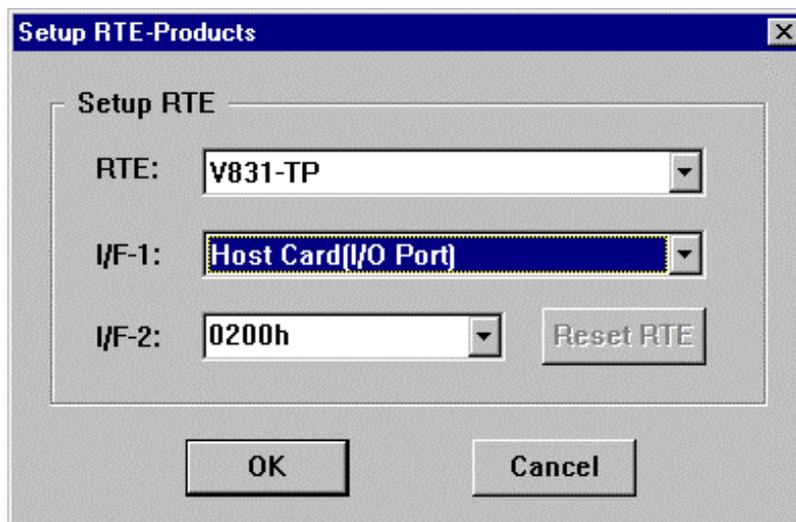
This chapter describes the setting of RTE for WIN32, with the focus on the aspects specific to KIT-V831/2-TP.

#### Starting ChkRTE32.exe

Start ChkRTE32.exe after RTE-100-TP has been connected to the user system and the power to all the devices is on. When RTE-100-TP is installed for the first time, ChkRTE32.exe must be started once to select RTE.

<Selecting RTE>

Set the Setup dialog box of ChkRTE32.exe, as follows.



\*Select V831-TP or V832-TP in RTE: section .

<Function test>

If RTE-100-TP is properly connected to the user system and capable of debugging, the following dialog box appears upon the normal completion of the function test. In this state, control from the debugger is possible.



If an error occurs during the test, the N-Wire cable is not properly connected. Check its connection.



**Perform the ChkRTE32.exe function test after the RTE-100-TP has been connected to the user system and the power to all the devices has been turned on.**

## 4. INITIALIZATION COMMANDS

Before debugging can be started, initialization is required. The following explains initialization using the appropriate internal commands. If the debugger offers a means of initialization, they may be used instead. (See Appendix A for an explanation of starting the internal commands and an explanation of the other internal commands.)

### **env command**

#### [Format]

```
env [!]auto [!]reset [!]nmi [!]hldrq [!]int{00|01|02|03} [!]int{10|11|12|13}
[jtag{25|12}] [!]verify [inone|istack|iaddr ADDR]
```

#### [Parameters]

##### [!]auto

If a break point is encountered during execution, the break point causes a temporary break. Choose [Auto] to automatically perform the subsequent execution. Choose [!auto] to suppress it.

##### [!]reset

This parameter specifies whether the RESET pin is to be masked. Enter ! if it is not to be masked.

##### [!]nmi

This parameter specifies whether the NMI pin is to be masked. Enter ! if it is not to be masked.

##### [!]hldrq

This parameter specifies whether the HLDRQ pin is to be masked. Enter ! if it is not to be masked.

##### [!]int{00|01|02|03}

This parameter specifies that pins INT00 to INT03 are to be masked. Enter ! if they are not to be masked.

##### [!]int{10|11|12|13}

This parameter specifies that pins int10 to int13 are to be masked. Enter ! if they are not to be masked.

##### jtag[12|25]

This parameter specifies the JTAG clock for N-Wire. Usually, use jtag25.

##### [!]verify

This parameter specifies the verification after writing memory is set. Enter ! if it is not to be set.

##### [inone|istack|iaddr ADDR]

This parameter specifies the work ram area when debugger accesses the V832 internal instruction ram.

inone : not specified

istack : This parameter specifies the area from current 32-byte stack.

iaddr ADDR : This parameter specifies the area from ADDR to ADDR + 32-byte.

#### [Function]

The env command sets the emulation environment. Enter only those parameters that need to be changed. Parameters may be entered in any order. If the same parameter is entered twice, only the last entry is valid.

**rom command**

## &lt;Format&gt;

rom [ADDRESS [LENGTH]] [512k|1m|2m|4m|8m|16m] [rom8|rom16] [bus8|bus16]

## &lt;Parameters&gt;

ADDRESS [LENGTH]

ADDRESS: Lowest address of the ROM to be emulated. (An error occurs if it does not match a ROM boundary.)

LENGTH: Number of bytes of the ROM to be emulated. (Must be specified in boundary units of 16 bytes.)

512k|1m|2m|4m|8m|16m

Specify the bit size of the ROM to be emulated. Sizes from 512K bits to 16M bits can be specified. For the 27C1024, for example, specify 1M bits.

rom8|rom16

Specify the number of data bits of the ROM to be emulated. Either 8 bits or 16 bits can be specified. If a DIP-32-ROM probe is used, choose rom8; if a DIP-40/42-ROM probe is used, choose rom16.

bus8|bus16|bus32

Specify the ROM bus size in the system to be emulated. 8 bits, 16 bits, or 32 bits can be specified.

## &lt;Function&gt;

The rom command sets the ROM emulation environment. Enter only the parameters that need to be changed. Parameters may be entered in any order. If the same parameter is entered twice, only the last entry is valid. The initial value of LENGTH is 0 (not used).

## &lt;Examples&gt;

rom C0000 40000 1m rom16 bus16

The 256K bytes (40000) of the 27C1024 (16-bit ROM with a size of 1M bits), starting at 0xc0000, are emulated. Consequently, two 16-bit ROMs are emulated.

rom fff80000 80000 2m rom rom16 bus32

The 512K bytes (80000) of the 27C2048 (16-bit ROM with a size of 2M bits), starting at 0xff80000, are emulated. Consequently, two 16-bit ROMs are emulated.

## &lt;Note&gt;

Access to the range specified by the rom command results in direct access to internal emulation memory. Access to addresses outside the range is performed via the processor bus.

## 5. INTERFACE SPECIFICATIONS

This chapter describes the specifications of the connectors used for control that are required for the user system.

### Pin arrangement table

Pin number	Signal name	Input/output (user side)	Treatment (user side)
A1	CPUCLK	Output	Buffered and 33-Ω series resistor (recommended)
A2	TRCDATA0	Output	Buffered and 33-Ω series resistor (recommended)
A3	TRCDATA1	Output	Buffered and 33-Ω series resistor (recommended)
A4	TRCDATA2	Output	Buffered and 33-Ω series resistor (recommended)
A5	TRCDATA3	Output	Buffered and 33-Ω series resistor (recommended)
A6	TRCEND	Output	Open
A7	DDI	Input	10-kΩ pullup
A8	DCK	Input	10-kΩ pulldown
A9	DMS	Input	10-kΩ pulldown
A10	DDO	Output	33-Ω series resistor (recommended)
A11	DRST-	Input	10-kΩ pulldown
A12	NC.	-----	Open
A13	NC.	-----	Open

Pin number	Signal name	Input/output (user side)	Treatment (user side)
B1-B10	GND	-----	Connection to the power GND
B11	NC.	-----	Open
B12	NC.	-----	Open
B13	+3.3V	-----	Connection to the power

### Connectors

Manufacturer: KEL

Models: 8830E-026-170S (straight)  
8830E-026-170L (right angle)  
8831E-026-170L (right angle, fixing hardware attached)

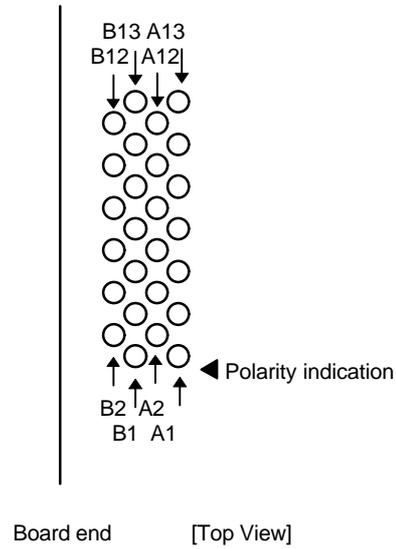
### Wire length

Keep the wire from CPU to the connector as short as possible.

>>100 mm or shorter is recommended.

**Layout of the connectors on the board**

The figure below shows the physical layout of the connectors on the board.



**Note:** When actually arranging the pins, design them according to the connector dimensional information.

## 6. PRECAUTIONS

This chapter provides precautionary information on the use of KIT-V831/2-TP.

### Precautions related to operation

- 1) Do not turn on the power to the user system while the power to RTE-1001-TP is off. Doing so can cause a malfunction.
- 2) KIT-V831/2-TP externally controls the debugging control circuit built into V831/2. Consequently, RTE-100-TP does not operate correctly unless the following conditions are satisfied:
  - \* RTE-100-TP is properly connected to the user system using the N-Wire cable.
  - \* The power to the user system is on so that V831/2 can run correctly.

### Precautions related to functions

- 1) The disassembly and display of real-time trace data is performed by reading the contents of memory at the point the trace display command is issued, according to the branching information received from V831/2. Consequently, the disassembly and display of the program located in RAM of the user system is not correct if changes (including erroneous writing due to a runaway CPU) are made after program execution. In addition, branching information may not be analyzed correctly because not all branching information may be output.