

M32176T-PTC

Converter Board for In-circuit Connection (for M32176FxxFP)

User's Manual

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CAUTION

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1. Outline

The M32176T-PTC is a converter board for featuring the debugging function such as real-time tracing when using a Renesas M32R emulator with the M32176FxxFP.

2. Package Components

- (1) M32176T-PTC converter board
- (2) YQPACK144SD (made by Tokyo Eletech Corporation)
- (3) NQPACK144SD (made by Tokyo Eletech Corporation)
- (4) YQ-GUIDE's (4 pieces)
- (5) Screwdriver (made by Tokyo Eletech Corporation)
- (6) M32176T-PTC User's Manual (This manual)

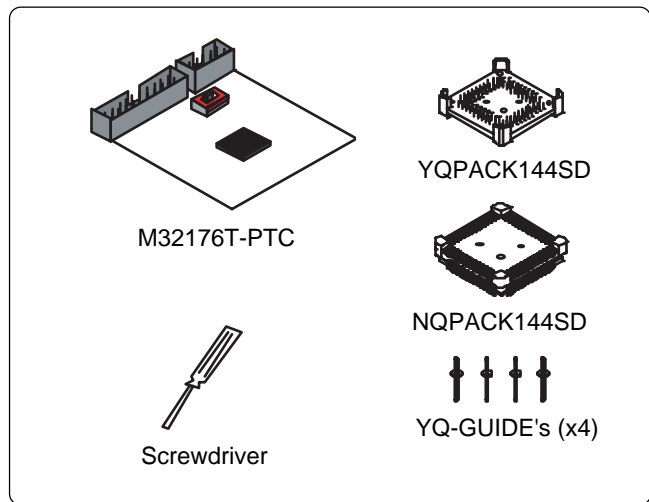


Figure 1 Package components of the M32176T-PTC

3. Specifications

Table 1 Specifications

Applicable package	144P6Q-A (144-pin 0.5-mm-pitch QFP)
Supported MCU	M32176FxxFP
Supported emulator	M32170T-SDI M32100T-SDI-E M32100T2-SDI-E M32100T3-SDI-E
Mounted MCU	M32176F4VWG
Clock	10 MHz
Power supply	Supplied from target board

4. Usage

The M32176T-PTC can be used for debugging and board mounted evaluation in common by mounting the NQPACK144SD on the target board.

(1) For debugging

Mount the NQPACK144SD (included with the M32176T-PTC) on the 144QFP foot pattern of the target board. Then connect the M32176T-PTC via the YQPACK144SD. As the M32176F4VWG is mounted on the M32176T-PTC, all functions of the emulator such as real-time tracing can be used.

(2) For board-mounted evaluation

Mount the M32176FxxFP and the HQPACK144SD (separately available) in that order on the NQPACK144SD on the target system.

Before using the M32176T-PTC, be sure to read "8. Precautions" on page 5.

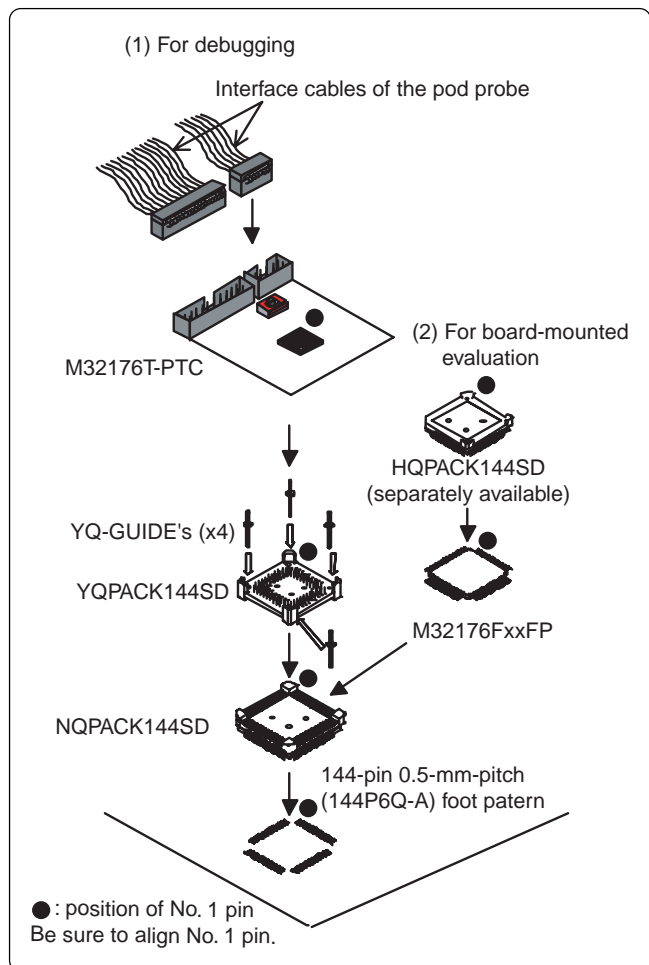


Figure 2 Usage of the M32176T-PTC

5. Connection Procedure

The procedure for connecting the M32176T-PTC is shown below.

- (1) Mount the NQPACK144SD.
 - (2) Mount the YQPACK144SD on the NQPACK144SD.
 - (3) Secure the four corners of the YQPACK144SD with the YQ-GUIDE'S.
 - (4) Set the clock select switch.
- For details, refer to "6. Selecting a Clock" shown below.
- (5) Connect the probe of the emulation pod and the M32176T-PTC via the SDI MCU control interface cable and the SDI trace interface cable.
 - (6) Mount the M32176T-PTC on the YQPACK144SD.

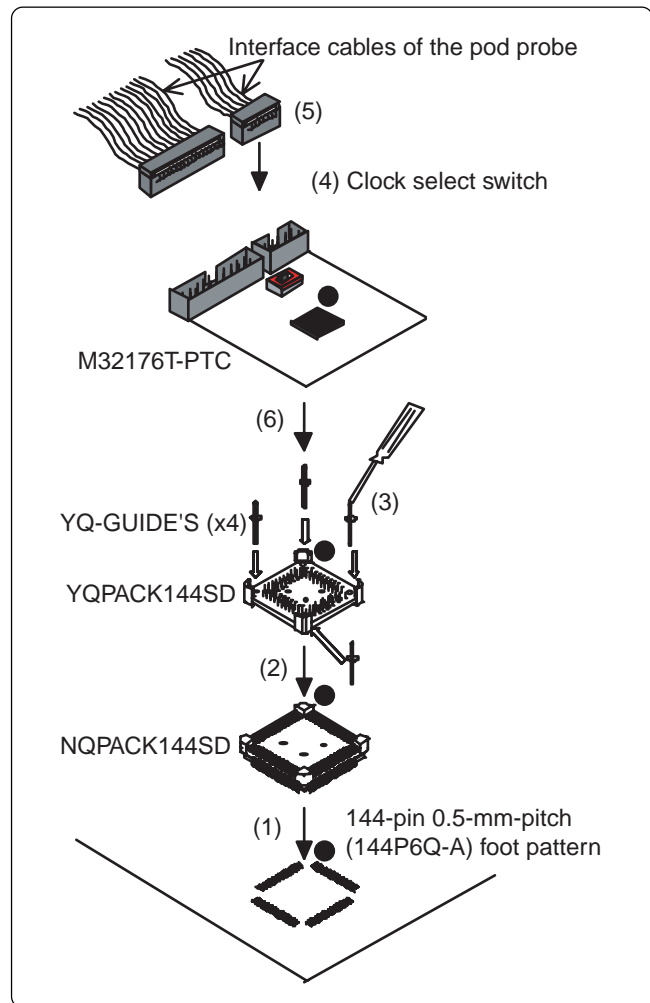


Figure 3 Connection procedure of the M32176T-PTC

6. Selecting a Clock

With the M32176T-PTC, it is possible to select a clock supply to the MCU by the clock select switch (SW1). Select a clock supply as shown below.

However, when using the M32176T-PTC, the clock cannot be supplied from the target system.

10 MHz: Supplies a clock (X1: 10 MHz) on the M32176T-PTC board to the MCU.

SOCKET: Supplies a clock to the MCU from the socket (X2) for mounting an oscillator on the M32176T-PTC board. By mounting the oscillator to the X2 socket of the MCU, it is possible to change the operating frequency.

For more details on connecting the X2 socket and the MCU, see Figure 4 (right).

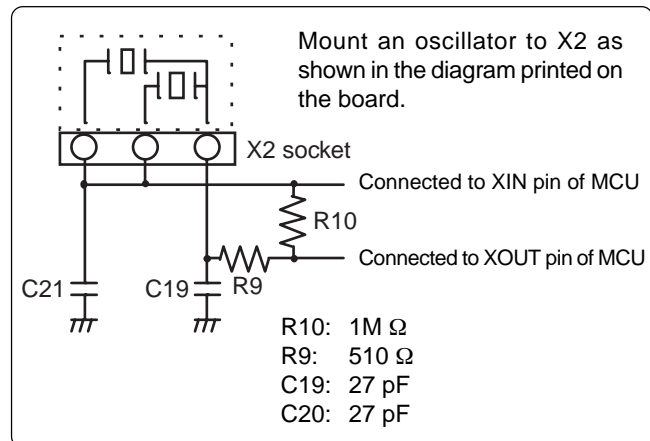


Figure 4 Connection diagram of X2 socket

7. External Dimensions and a Sample Foot Pattern of the M32176T-PTC

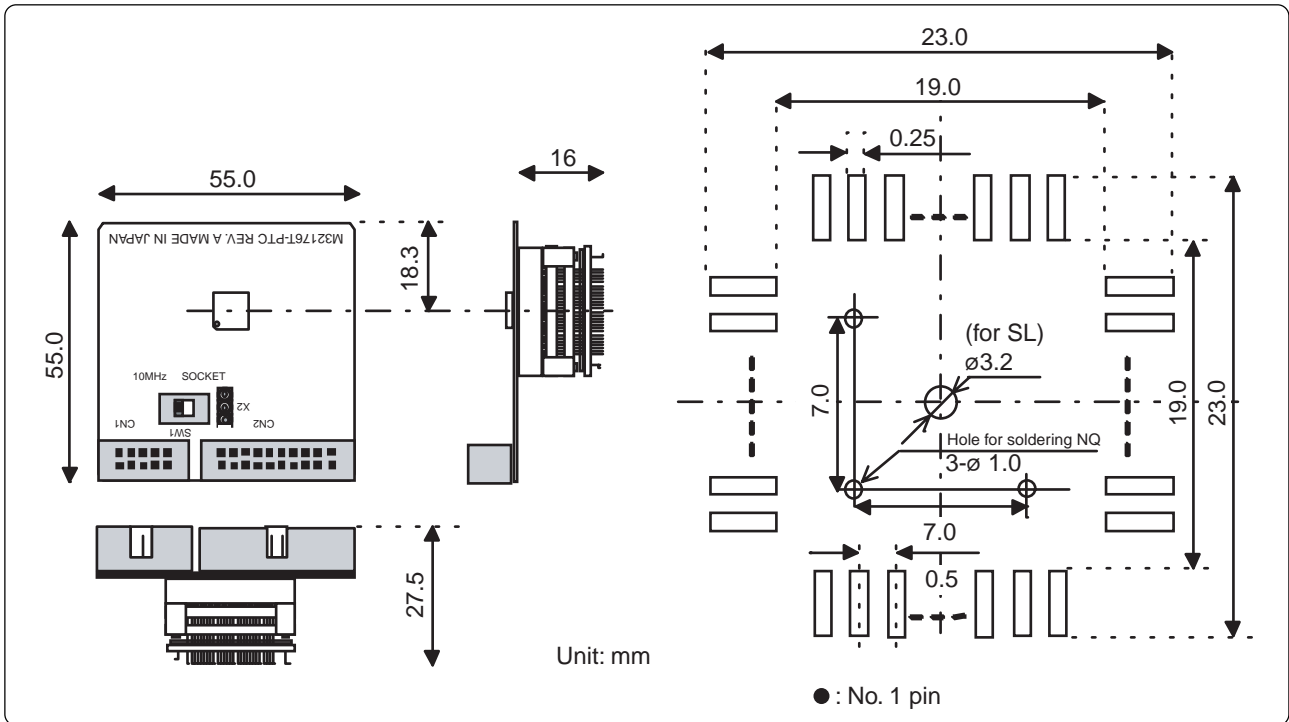


Figure 5 External dimensions and a sample foot pattern of the M32176T-PTC

8. Precautions

CAUTION

Cautions to Be Taken for Emulator:



- For debugging, use this product in the combination with the M32100T2-SDI-E, M32170T-SDI, M32100T-SDI-E or M32100T3-SDI-E emulator.
- When starting up an emulator debugger (M3T-PD32R or M3T-PD32RM), select an MCU file according to the type name and the operation mode of the MCU to be debugged. For details on the MCU file to be selected, refer to the emulator debugger's release notes.
- Connect the both cables for connecting the emulator, the SDI MCU control interface cable (10-pin) and the SDI trace interface cable (20-pin).
- For the precautions for the combination of the emulator, refer to the user's manual of the emulator debugger.

Cautions for Differences between MCU and This Product:



- For debugging, as the M32176F4VWG (512KB internal flash ROM) on the M32176T-PTC is used, be careful about the difference of the internal flash ROM size.
- When setting the clock select switch to the "SOCKET" side, oscillation occurs by itself, be careful about the difference of the resistor value and the capacitor.
- The capacity load of the all lines of the MCU will increase depending on wirings and connectors. Use the part whose timing is critical after checking it works properly.

Cautions to Be Taken for This Product:



- When connecting the YQPACK144SD, be sure to use the included YQ-GUIDE's.
- We cannot accept any request for repair.
- For purchasing the NQPACK144SD, YQPACK144SD and HQPACK144SD, contact the following:

~~Daimaru Kogyo Ltd.~~
~~<http://www.daimaru-kogyo.com/>~~

Tokyo Eletech Corporation
http://www.tetc.co.jp/e_tet.htm

- For inquiries about the product or the contents of this manual, contact your local distributor.

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