

In-Circuit Emulator for MELPS 7700

- 25 MHz no-waitstate emulation
- Supports wide speed range (100KHz .. 25MHz)
- Support for IAR and MICROTEC C Compiler
- RTOS support for embOS and RTOS/7700
- Dual ported memory
- Internal data memory image
- Port analyzer
- Powerful performance analysis
- Support for 3.3V and 5V targets
- Windows9x, NT and Motif support

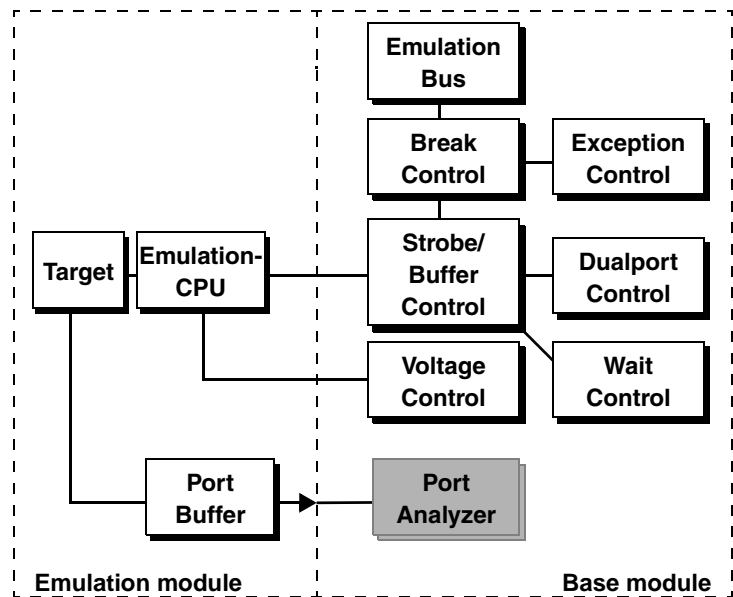
[MELPS37702](#)
[MELPS37703](#)
[MELPS37704](#)
[MELPS37705](#)
[MELPS37708](#)
[MELPS37710](#)
[MELPS37730](#)
[MELPS37732](#)
[MELPS37733](#)
[MELPS37750](#)

The TRACE32-ICE MELPS supports most of the members of the Renesas MELPS 7700 family. The emulator uses the emulation chip mode in order to get full access to the internal and external program and data area. A port-replacement unit reconstructs the lower ports transparent to the user. The modular and open technology of ICE-MELPS allows the fast integration of new chip designs.

TRACE32-ICE is a state of the art In-Circuit Emulator, which offers unlimited hardware breakpoints and up to 16MByte dual-ported emulation memory. The real-time trace and trigger work up to the max. speed of the CPU. The analyzer offers selective trace as well as performance analysis and statistic functions.

Features

Basics of Operation



The ICE-MELPS probe is a high-performance emulation system for most members of the MELPS 7700 family from Renesas. The change between different CPU types is done by changing the emulation module.

On the base module there is an extra slot for the TRACE32 Port Analyzer. Depending on the CPU type additional CPU signals can be traced.

Operating Modes

The Emulator can work in stand-alone mode with internal clock or in active mode with internal or the target clock. On power-down of the target system the emulator tristates its output buffers and isolates its internal emulation circuits.

Reset Down

- Reset Up
- No Probe
- Alone Internal
- Alone External
- Emulation Internal
- Emulation External

Clock

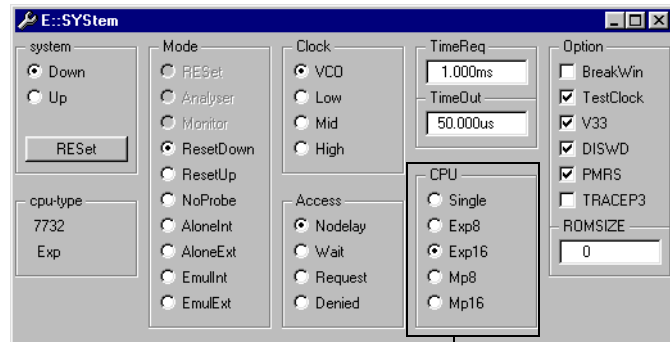
Operation with external or internal Clock, up to 25 MHz depending on the derivative

0.75..35 MHz internal clock can be chosen using an VCO

Voltage and Clock Monitors for the Target System

This feature prevents failures caused by missing clock or undervoltage.

CPU Modes



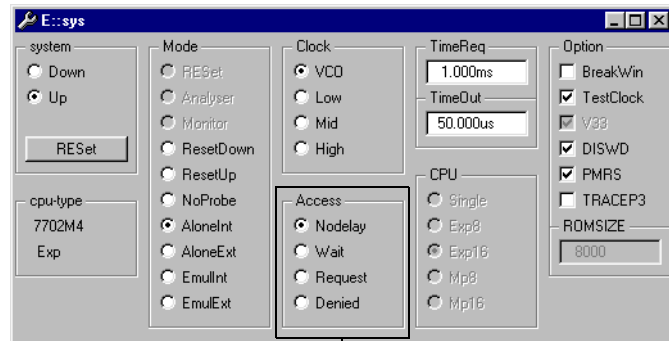
CPU modes

ICE-MELPS supports all processor mode:

- Single-Chip
- Microprocessor 16 bit bus

- Microprocessor 8 bit bus
- Expanded 16 bit bus
- Expanded 8 bit bus

Dual-Port Access



Dual port access modes

All TRACE32 memories are dual-ported. The dual-port access makes it possible to display and modify the contents of the overlay memory, to set or delete breakpoints or use the flag memory while the application is running in real-time. Most modes do not touch real time program execution. However for different demands the user may choose different access modes.

The following dual-port access modes are implemented:

- Nodelay

- REFresh
- Wait

The **Nodelay mode** supports hidden dual-port accesses up to 12/20MHz.

In the **REFresh mode** the dual port access is done using the wait input line.

In the **Request mode** the dual-port access is done using the request line.

In the **Denied mode** the dual-port access is switched off.

Background Task

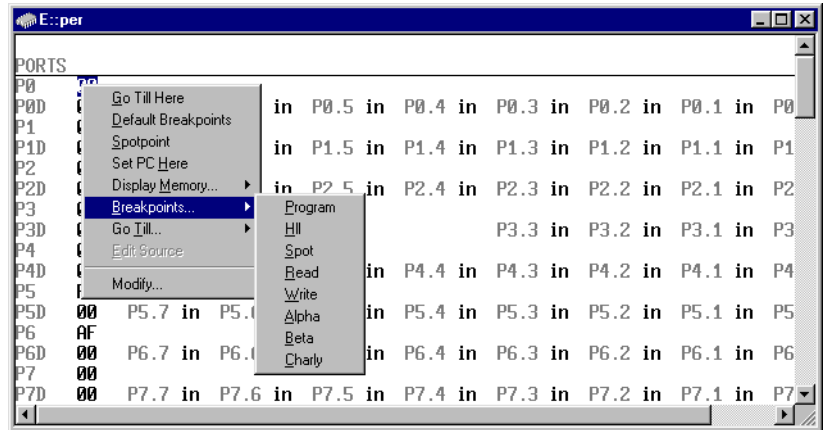
The background task allows:

- To process interrupts

- To maintain the refresh of a target DRAM

while the emulation is stopped.

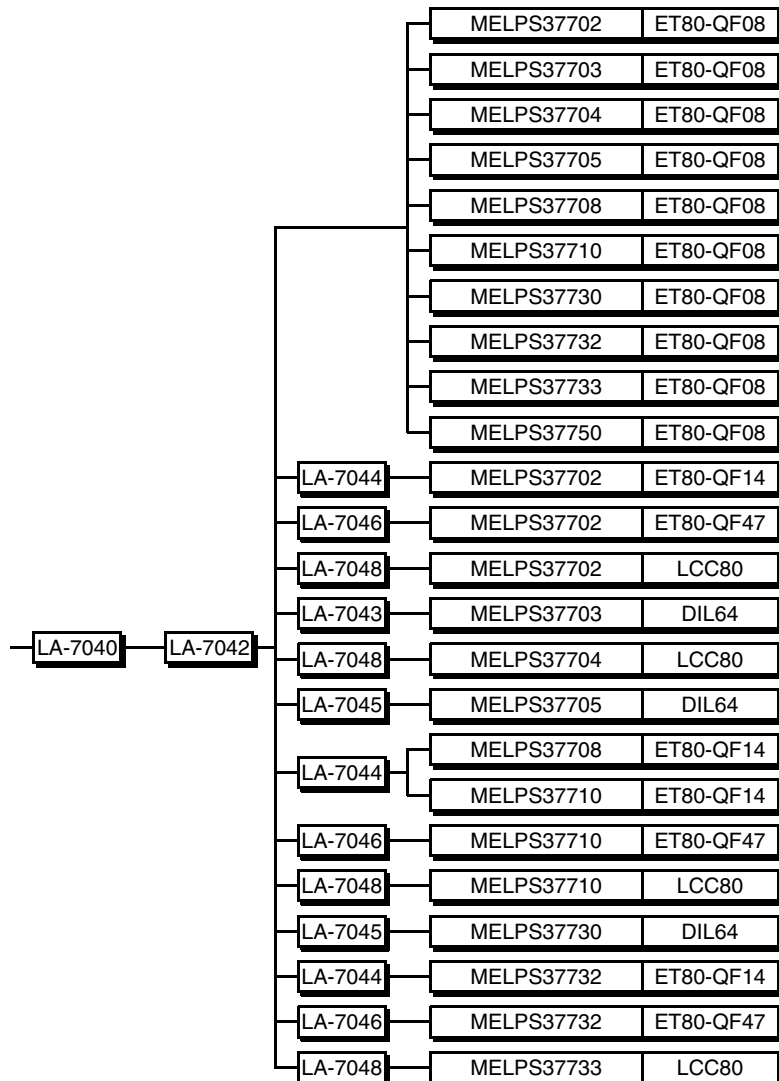
Peripheral Window



- Display of onchip peripherals
- User definable display of the onchip peripherals
- Definition is done interactive supported by softkeys
- Pull down menus for settings
- Additional description for each field
-

Emulation Modules

Overview



Debug Interfaces

Compiler

Language	Compiler	Company	Option	Comment
ASM	A7700	IAR Systems AB	UBROF	
C	ICC7700	IAR Systems AB	UBROF	
C	MCC7700	Mentor Graphics Corporation	IEEE	

RTOS Support

Name	Company	Comment
embOS	Segger	3.80
RTOS/7700	Avnet Inc.	
SDT-Cmicro	IBM Corp.	(Telelogic Tau)

Debugger Support

CPU	Debugger	Company	Host
ALL	X-TOOLS / X32	blue river software GmbH	Windows
ALL	CODEWRIGHT	Borland Software Corporation	Windows
ALL	CODE CONFIDENCE TOOLS	Code Confidence Ltd	Windows
ALL	CODE CONFIDENCE TOOLS	Code Confidence Ltd	Linux
ALL	EASYCODE	EASYCODE GmbH	Windows
ALL	ECLIPSE	Eclipse Foundation, Inc	Windows
ALL	RHAPSODY IN MICROC	IBM Corp.	Windows
ALL	RHAPSODY IN C++	IBM Corp.	Windows
ALL	LDRA TOOL SUITE	LDRA Technology, Inc.	Windows
ALL	ATTOL TOOLS	MicroMax Inc.	Windows
ALL	VISUAL BASIC INTERFACE	Microsoft Corporation	Windows
ALL	LABVIEW	NATIONAL INSTRUMENTS Corporation	Windows
ALL	CODE::BLOCKS	Open Source	-
ALL	C++TEST	Parasoft	Windows
ALL	RAPITIME	Rapita Systems Ltd.	Windows
ALL	DA-C	RistanCASE	Windows
ALL	SIMULINK	The MathWorks Inc.	Windows
ALL	WINDOWS CE PLATF. BUILDER	Windows	Windows
MELPS7700	SDT CMICRO	IBM Corp.	Windows

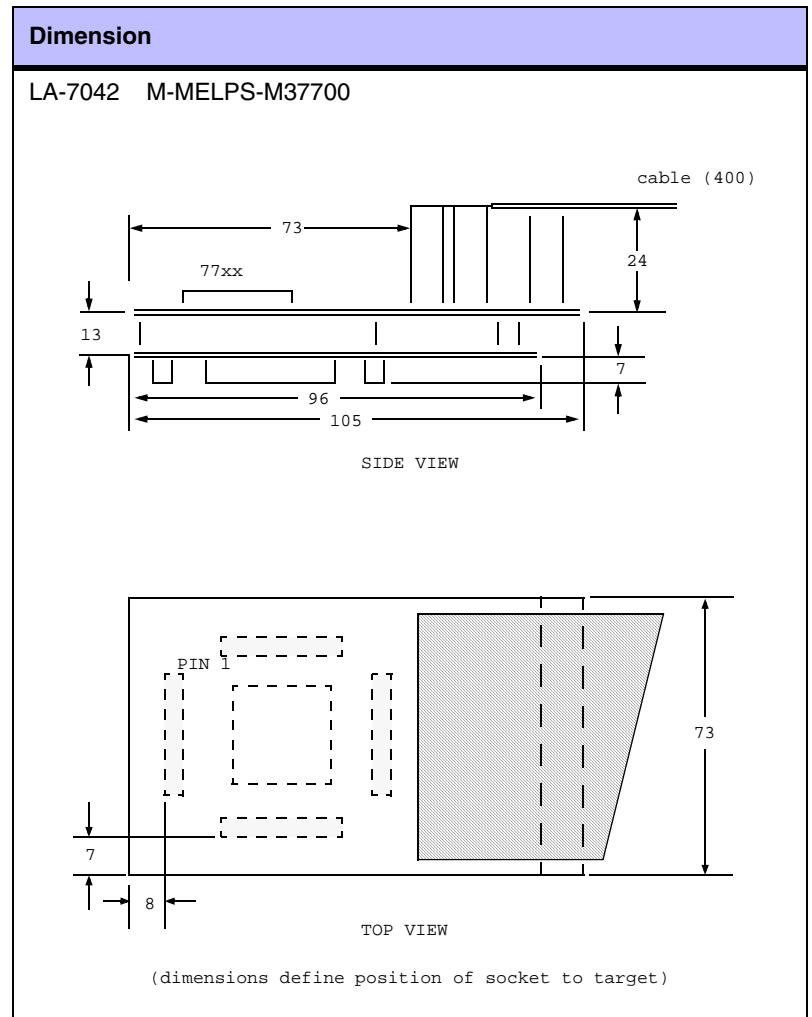
Operation Frequency

Denied Access

Module	CPU	F-W0-15	F-W0-35	S-W0-15	S-W0-35	S-W1-15	S-W1-35	DRAM
LA-7042	MELPS37702	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37703	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37704	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37705	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37708	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37710	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37730	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37732	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37733	25.0	21.9	22.6	20.0	25.0+	25.0+	
LA-7042	MELPS37750	25.0	21.9	22.6	20.0	25.0+	25.0+	

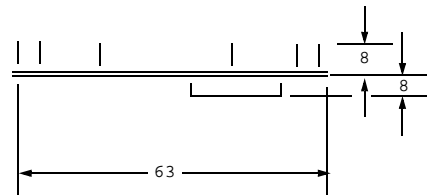
Dimensions

Module Dimensions

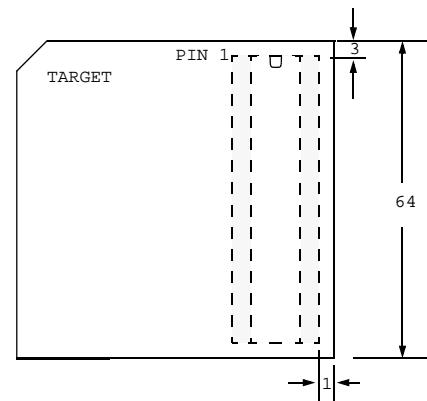


Dimension

LA-7043 A-MELPS-DIL64



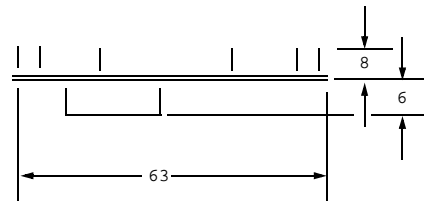
SIDE VIEW



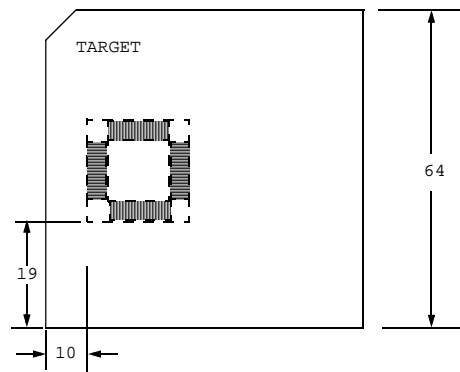
TOP VIEW (all dimensions in mm)

Dimension

LA-7044 A-MELPS-QFP-0.65



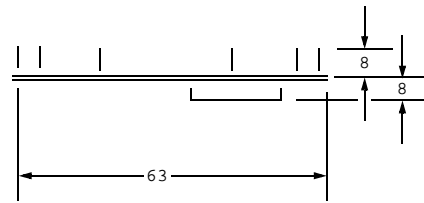
SIDE VIEW



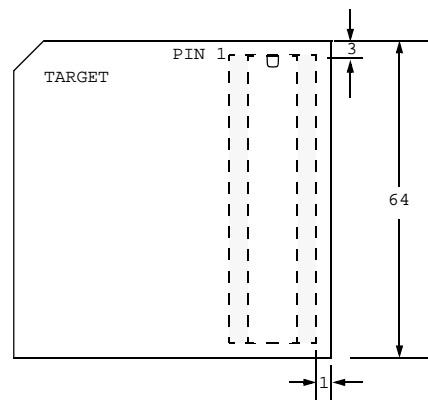
TOP VIEW (all dimensions in mm)

Dimension

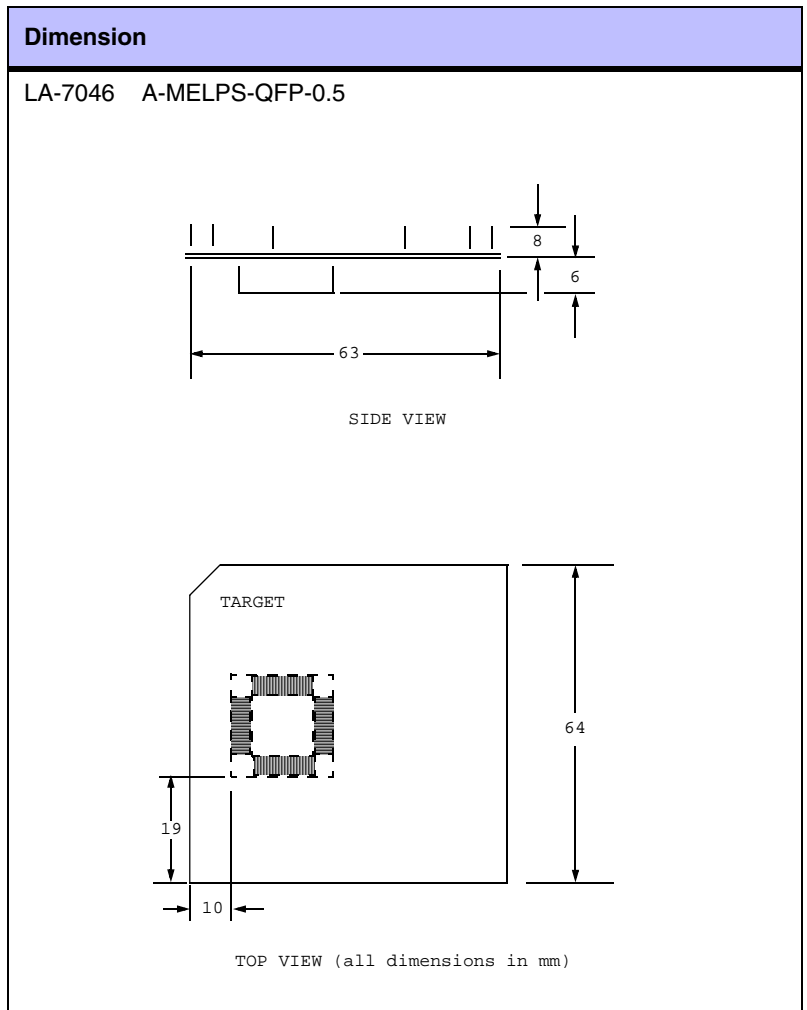
LA-7045 A-MELPS-DIP64

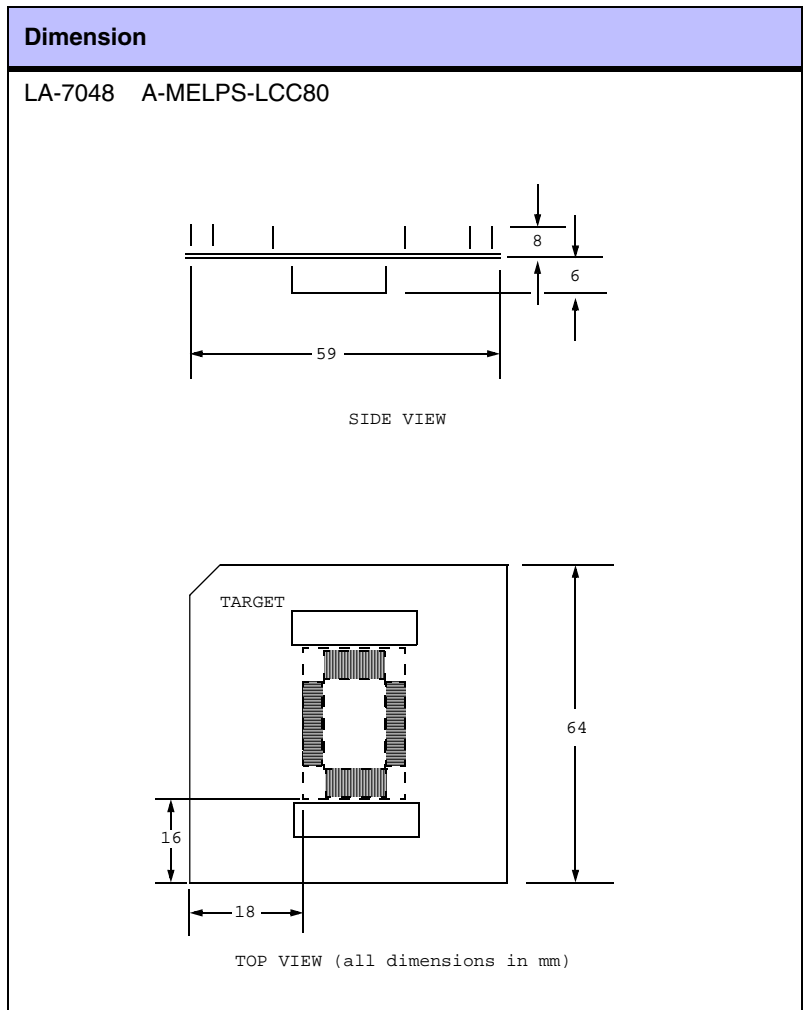


SIDE VIEW



TOP VIEW (all dimensions in mm)





Connectors

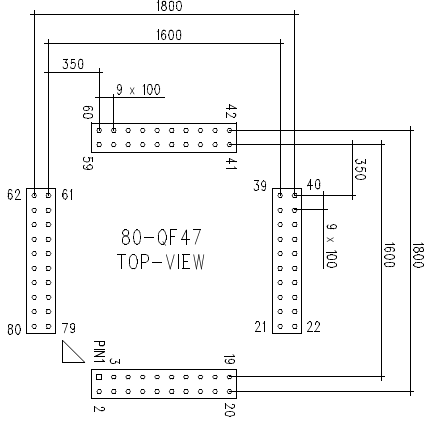
On each emulation module there are half-size connectors to:

- ❑ Connect the emulation module directly to the target by providing the corresponding connectors also on the target hardware

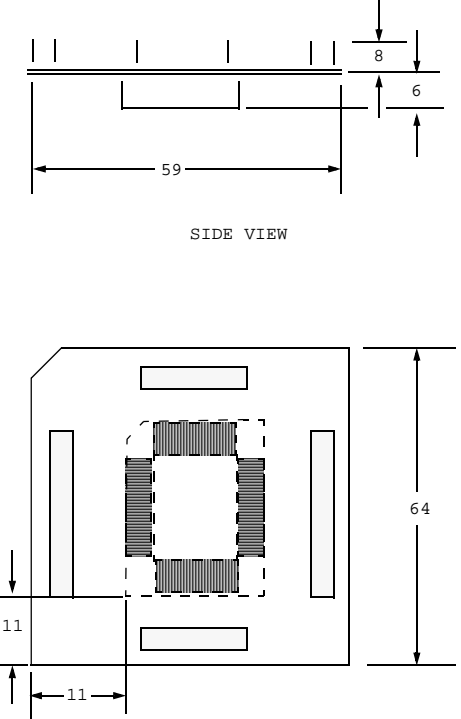
- ❑ Connect a standard adapter from Emulation Technology, YAMAICHI, AMP, TOKYO ELETECH etc.

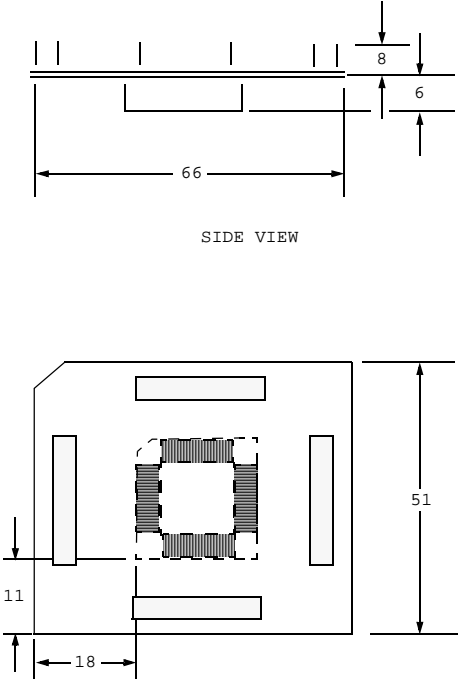
The following table lists the physical dimensions of these connectors.

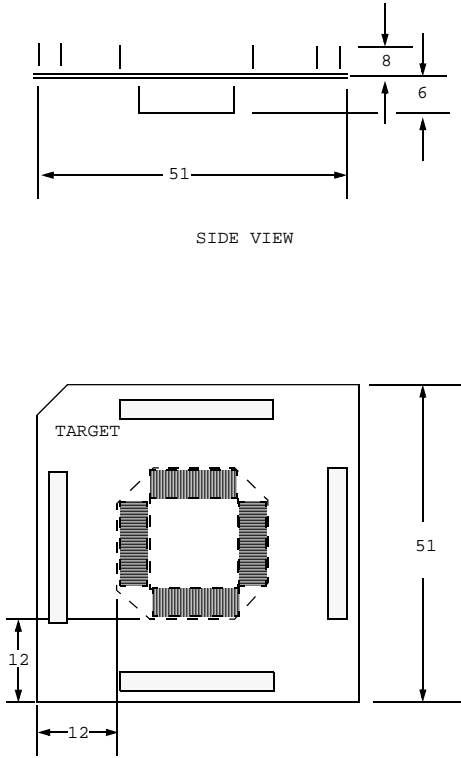
CPU	Dimension
MELPS37702 MELPS37703 MELPS37704 MELPS37705 MELPS37708 MELPS37710 MELPS37730 MELPS37732 MELPS37733 MELPS37750	<p>ET80-QF08</p> <p>80-QF08 TOP-VIEW</p>
MELPS37702 MELPS37708 MELPS37710 MELPS37732	<p>ET80-QF14</p> <p>80-QF14 TOP-VIEW</p>

CPU	Dimension
MELPS37702 MELPS37710 MELPS37732	ET80-QF47  <p>The diagram is a top view of the ET80-QF47 CPU package. It shows a square package with a total width and height of 1800 units. The central area is a square with a side length of 1600 units. The package has 80 pins arranged in a perimeter. The pin locations are numbered 1 through 80. A 9x100 array of pins is shown on the top edge, and another 9x100 array is shown on the right edge. The package is labeled '80-QF47 TOP-VIEW'.</p>

Adaptation

Socket CPU	Adapter
<p>ET80-QF08</p> <p>MELPS37702 MELPS37703 MELPS37704 MELPS37705 MELPS37708 MELPS37710 MELPS37730 MELPS37732 MELPS37733 MELPS37750</p>	<p>YA-1071 ET80-EYA-QF08 Emul. Adapter for YAMAICHI socket ET080-QF08</p>  <p>SIDE VIEW</p> <p>TOP VIEW (all dimensions in mm)</p>

Socket CPU	Adapter
<p>ET80-QF14</p> <p>MELPS37702 MELPS37708 MELPS37710 MELPS37732</p>	<p>YA-1131 ET80-EYA-QF14 Emul. Adapter for YAMAICHI socket ET080-QF14</p>  <p>SIDE VIEW</p> <p>TOP VIEW (all dimensions in mm)</p>

Socket CPU	Adapter
<p data-bbox="699 376 826 405">ET80-QF47</p> <p data-bbox="699 436 849 517">MELPS37702 MELPS37710 MELPS37732</p>	<p data-bbox="927 376 1422 456">YA-1081 ET80-EYA-QF47 Emul. Adapter for YAMAICHI socket ET080-QF47</p>  <p data-bbox="1139 763 1238 786">SIDE VIEW</p> <p data-bbox="1023 1317 1362 1339">TOP VIEW (all dimensions in mm)</p>

Order Information

Module Description

OrderNo Code	Text
LA-7040 ICE-7700	ICE-7700 Base Module supports MELPS M37700 family
LA-7042 M-MELPS- M37700	Module MELPS M377xx supports MELPS M37702/03/04/05/08/10/30/32/33 single-chip,expanded,microprocessor mode max. emulation frequency 25 MHz , socket ET80R, connection to several adapter or YAMAICHI adapter not included.
LA-7043 A-MELPS- DIL64	Adapter for MELPS M37703 DIL64 Adapter for MELPS M37703 , ET80R to dual-in-line 64
LA-7044 A-MELPS-QFP- 0.65	Adapter for MELPS M37708/32 QFP80-14 0.65 mm Adapter for MELPS M37708/32, ET80R to QF14 pitch 0.65 mm
LA-7045 A-MELPS- DIP64	Adapter for MELPS M37705 DIP64 Adapter for MELPS M37705, ET80R to shrink DIP 64
LA-7046 A-MELPS-QFP- 0.5	Adapter for MELPS M37732 QFP80 0.5mm Adapter for MELPS M37732, ET80R to QF47 pitch 0.5 YAMAICHI socket part number: IC149-080-030-B5 without locater pin IC149-080-130-B5 with locater pin
LA-7048 A-MELPS- LCC80	Adapter for MELPS M37702/04 LCC80 case Adapter for MELPS M37702/04, ET80R to LCC80 0.8 pitch

Detailed Order Information

Order No.	Code	Text
LA-7040	ICE-7700	ICE-7700 Base Module
LA-7042	M-MELPS- M37700	Module MELPS M377xx
LA-7043	A-MELPS-DIL64	Adapter for MELPS M37703 DIL64
LA-7044	A-MELPS-QFP- 0.65	Adapter for MELPS M37708/32 QFP80-14 0.65 mm
LA-7045	A-MELPS-DIP64	Adapter for MELPS M37705 DIP64
LA-7046	A-MELPS-QFP- 0.5	Adapter for MELPS M37732 QFP80 0.5mm
LA-7048	A-MELPS-LCC80	Adapter for MELPS M37702/04 LCC80 case

Order No.	Code	Text
Additional Options		
ET-1072	ET80-CET-QF08	Clip-Over Adapter for QF08
TO-1275	ET80-ETO-QF14	Emul. Adapter for T0 socket ET080-QF14
TO-1270	ET80-ETO-QF47	Emul. Adapter for T0 socket ET080-QF47
YA-1071	ET80-EYA-QF08	Emul. Adapter for YAMAICHI socket ET080-QF08
YA-1131	ET80-EYA-QF14	Emul. Adapter for YAMAICHI socket ET080-QF14
YA-1081	ET80-EYA-QF47	Emul. Adapter for YAMAICHI socket ET080-QF47
ET-1070	ET80-SET-QF08	Surface Mountable Adapter for ET80-QF08
ET-1130	ET80-SET-QF14	Surface Mountable Adapter for ET80-QF14
TO-1276	ET80-STO-QF14	Emul. Adapter TO-surface mount. ET080-QF14
TO-1271	ET80-STO-QF47	Emul. Adapter TO-surface mount. ET080-QF47
LA-6450	PA64	Port Analyzer
YA-1154	YA-SOCKET-QF08	YAMAICHI Socket ET80-QF08

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