

CXP86400/86490

CMOS 8-bit Single Chip Microcomputer

**Piggyback/
evaluator type**

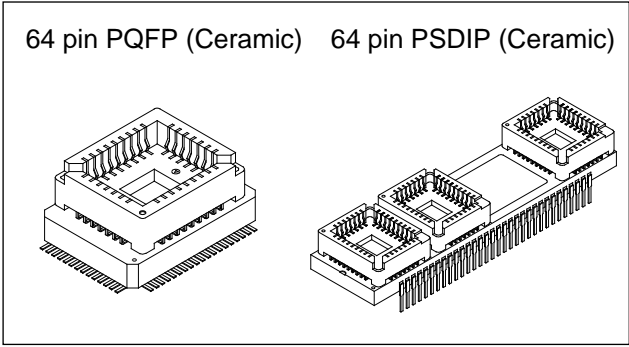
Description

The CXP86400/86490 are CMOS 8-bit single chip microcomputers that serve as both piggyback and evaluator. The CXP86400/86490 are developed for evaluating the function of the CXP86440/86448/86460. Note that the CXP86400 corresponds to the fixed font and the CXP86490 corresponds to the custom font respectively.

Features

- A wide instruction set (213 instructions) which covers various types of data
 - 16-bit operation/multiplication and division/ Boolean bit operation instructions
- Minimum instruction cycle 250ns at 16MHz operation
 122µs at 32kHz operation
- Applicable EPROM LCC type 27C512 (Maximum 60K bytes are available.)
- Incorporated RAM 1536 bytes (Excludes VRAM for on-screen display and sprite RAM)
- EPROM for custom font (CXP86490 only)
 LCC27C512 (Maximum 12K bytes are available.)
- Peripheral functions
 - A/D converter 8 bits, 6 channels, successive approximation method
(Conversion time of 1.6µs at 16MHz)
 - Serial interface 8-bit clock sync type, 1 channel
 - Timer 8-bit timer
 8-bit timer/counter
 19-bit time base timer
 32kHz timer/ counter
 - On-screen display (OSD) 12 × 16 dots, 384 character types, 15 character colors, 24 characters × 2 lines
frame background 8 colors/half blanking
background on full screen 15 colors/half blanking
edging/shadowing/rounding for every line
background with shadow for every character/ double scanning
sprite OSD; 12 × 16 dots, 1 screen, 8 colors for every dot
 - I²C bus interface
 - PWM output 8 bits, 8 channels
 14 bits, 1 channel
 - Remote control reception circuit
 8-bit pulse measurement counter, 6-stage FIFO
 - HSYNC counter
 - Watchdog timer
- Interruption 13 factors, 13 vectors, multi-interruption possible
- Standby mode SLEEP
- Package CXP86400 64-pin ceramic PQFP
 CXP86490 64-pin ceramic PSDIP (Supports custom font)

Note) Mask option depends on the type of the CXP86400/86490. Refer to the Product List for details.



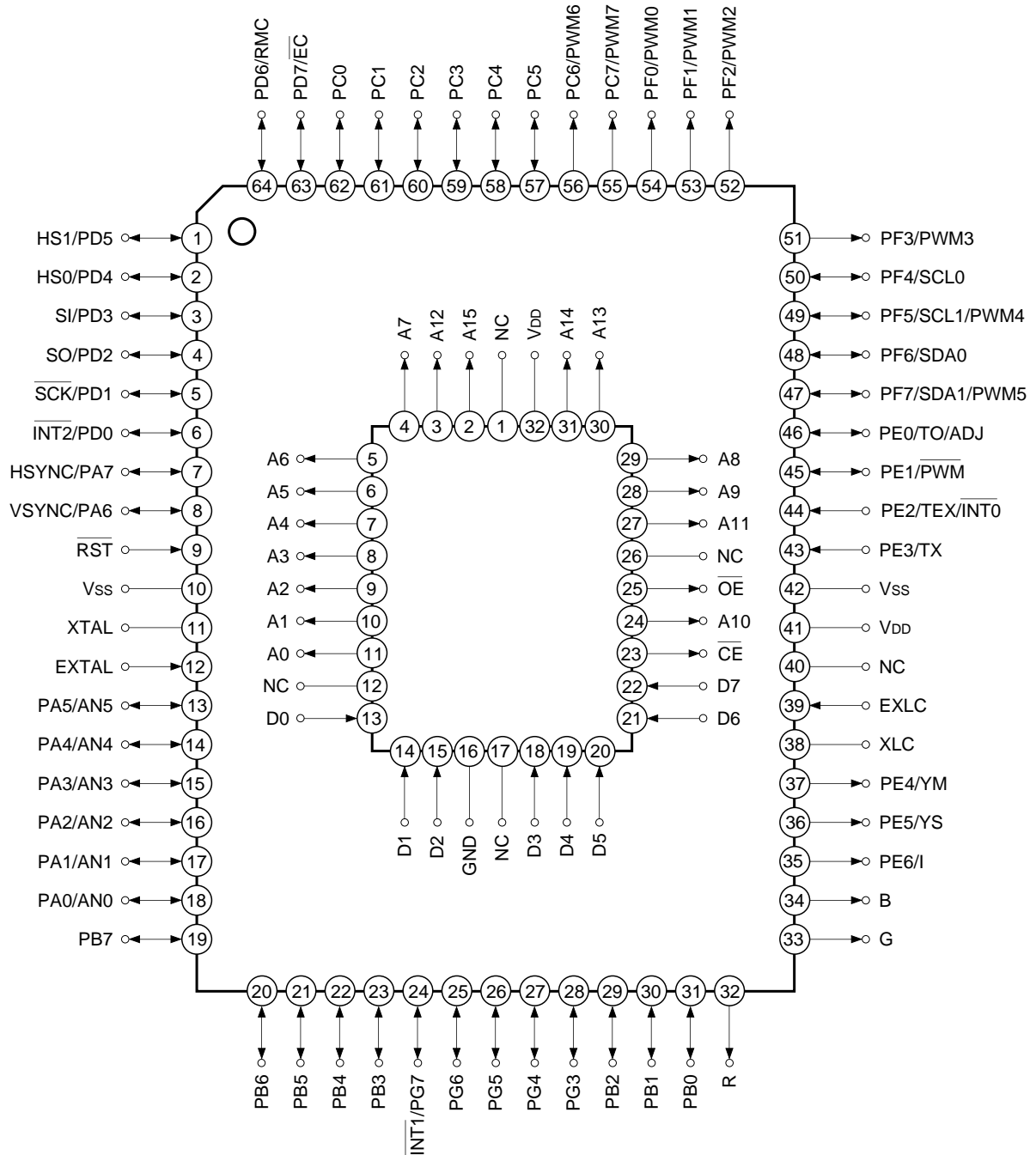
Structure
Silicon gate CMOS IC

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CXP86400

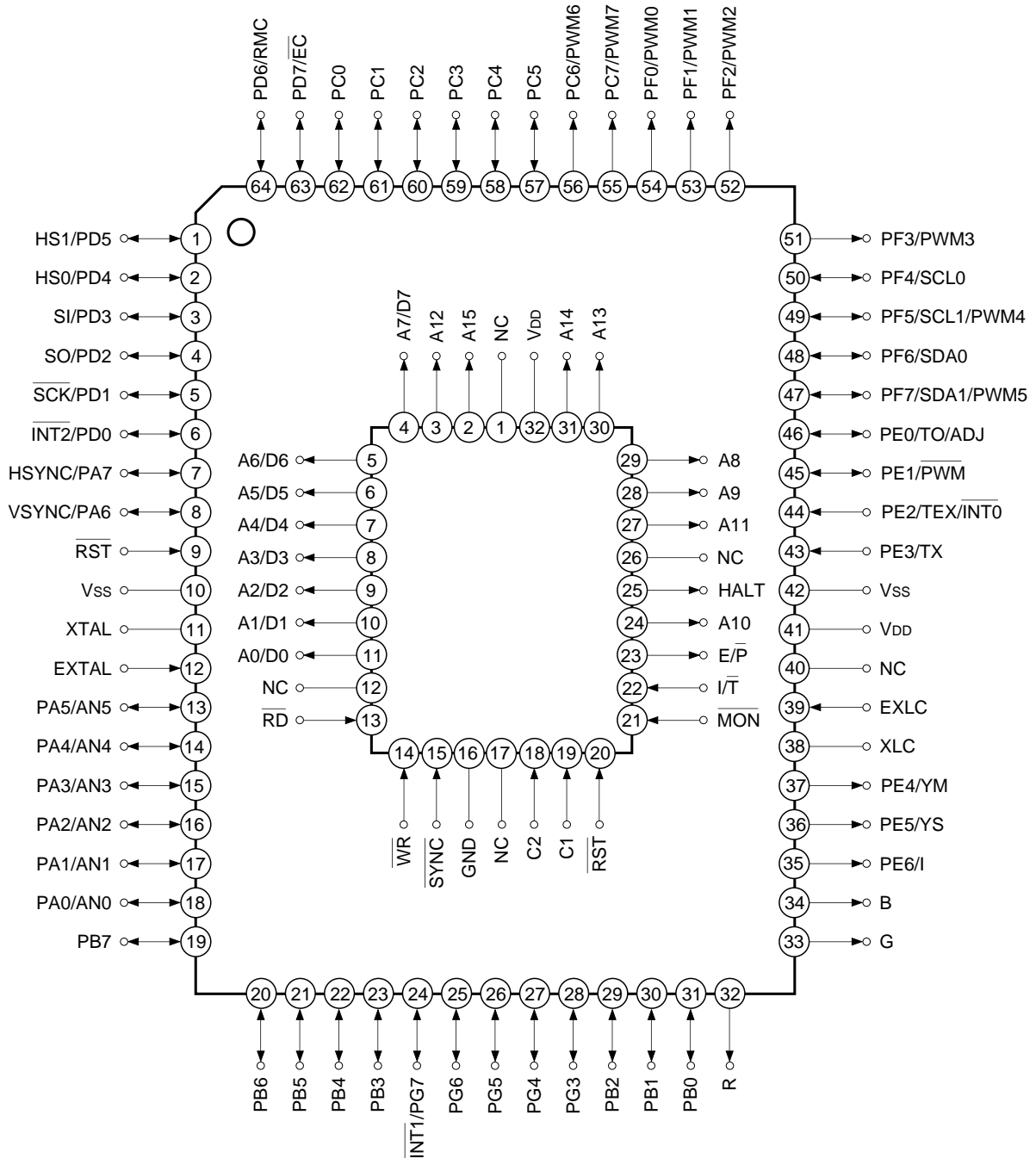
Pin Assignment in Piggyback Mode (Top View)



- Note)** 1. NC (Pin 40) is left open.
 2. Vss (Pins 10 and 42) are both connected to GND.

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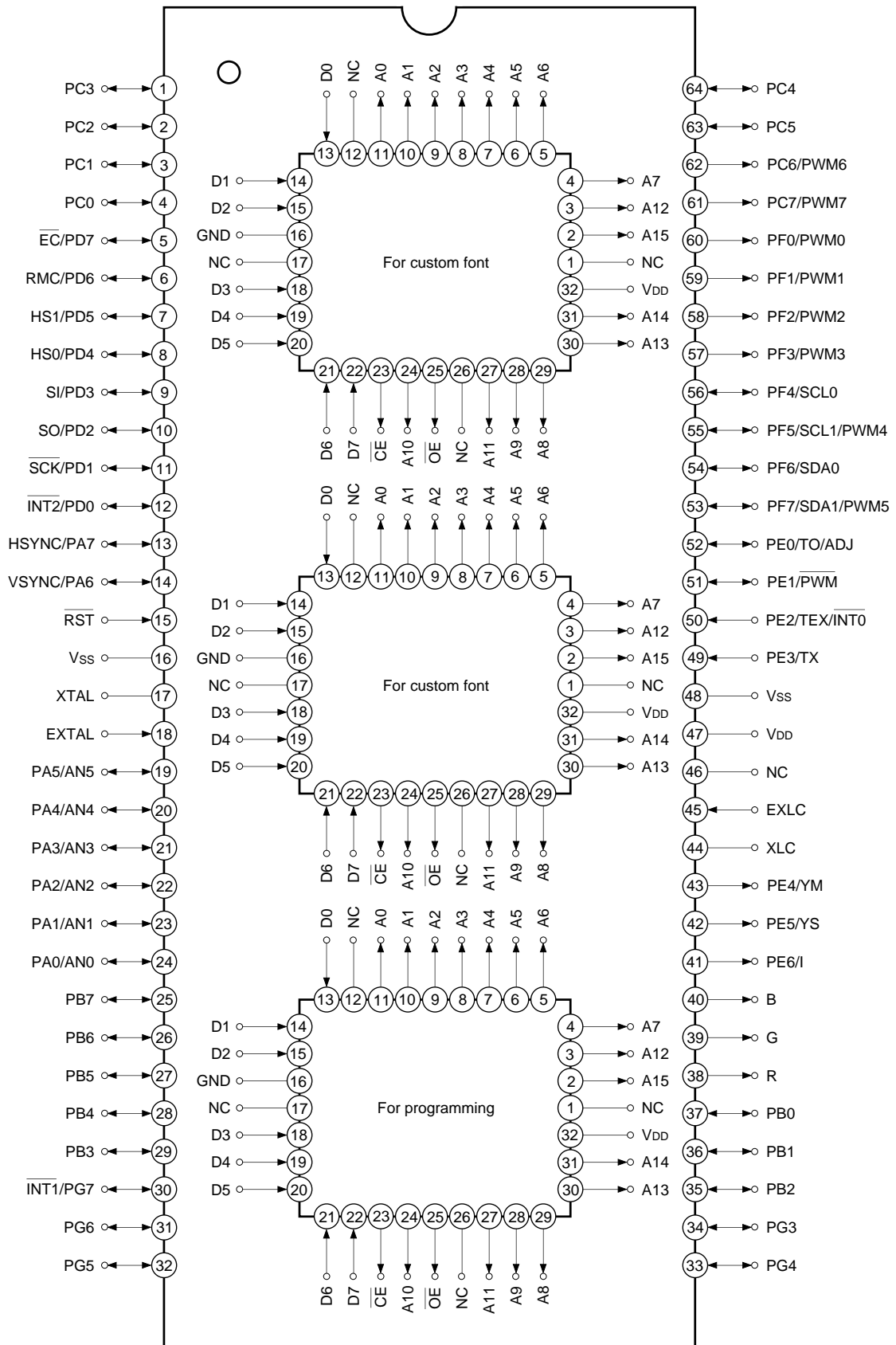
Pin Assignment in Evaluator Mode (Top View)



- Note)**
1. NC (Pin 40) is left open.
 2. Vss (Pins 10 and 42) are both connected to GND.

CXP86490

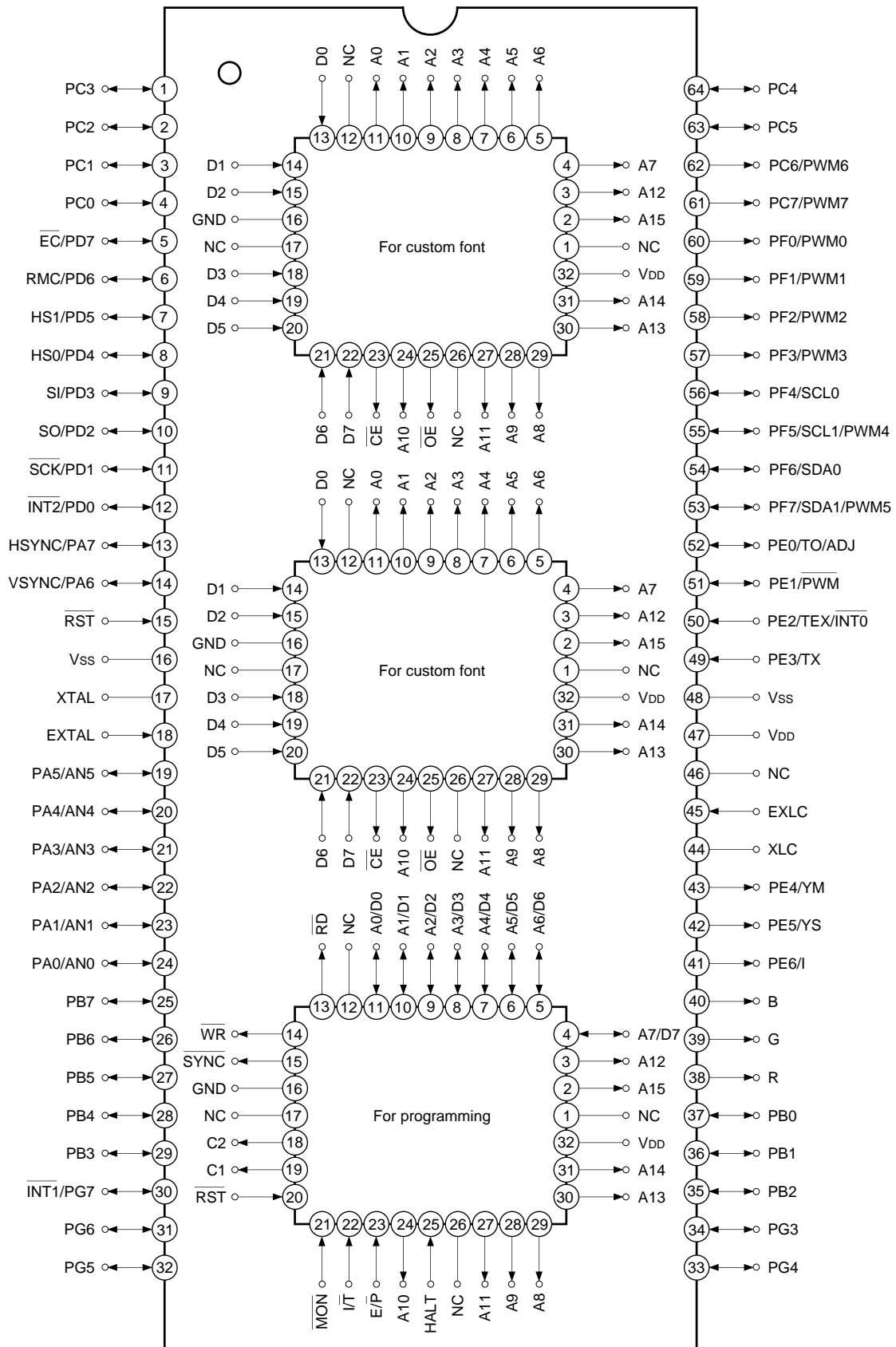
Pin Assignment in Piggyback Mode (Top View)



- Note)** 1. NC (Pin 46) is left open.
 2. Vss (Pins 16 and 48) are both connected to GND.

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Pin Assignment in Evaluator Mode (Top View)

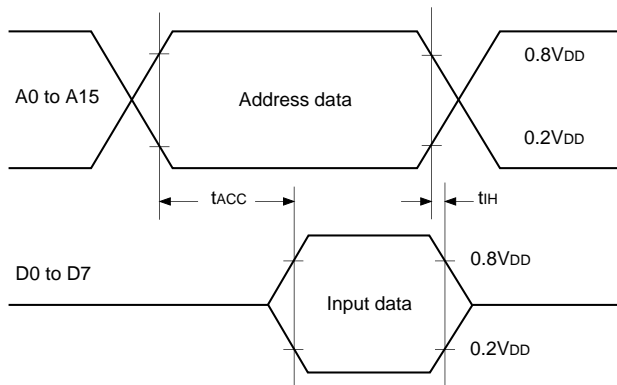


- Note)** 1. NC (Pin 46) is left open.
 2. Vss (Pins 16 and 48) are both connected to GND.

EPROM Read Timing

($T_a = -20$ to $+75^\circ\text{C}$, $V_{DD} = 4.5$ to 5.5V , $V_{SS} = 0\text{V}$)

Item	Symbol	Pins	Min.	Max.	Unit
Address → data input delay time	t_{ACC}	A0 to A15 D0 to D7		75	ns
Address → data hold time	t_{IH}	A0 to A15 D0 to D7	0		ns



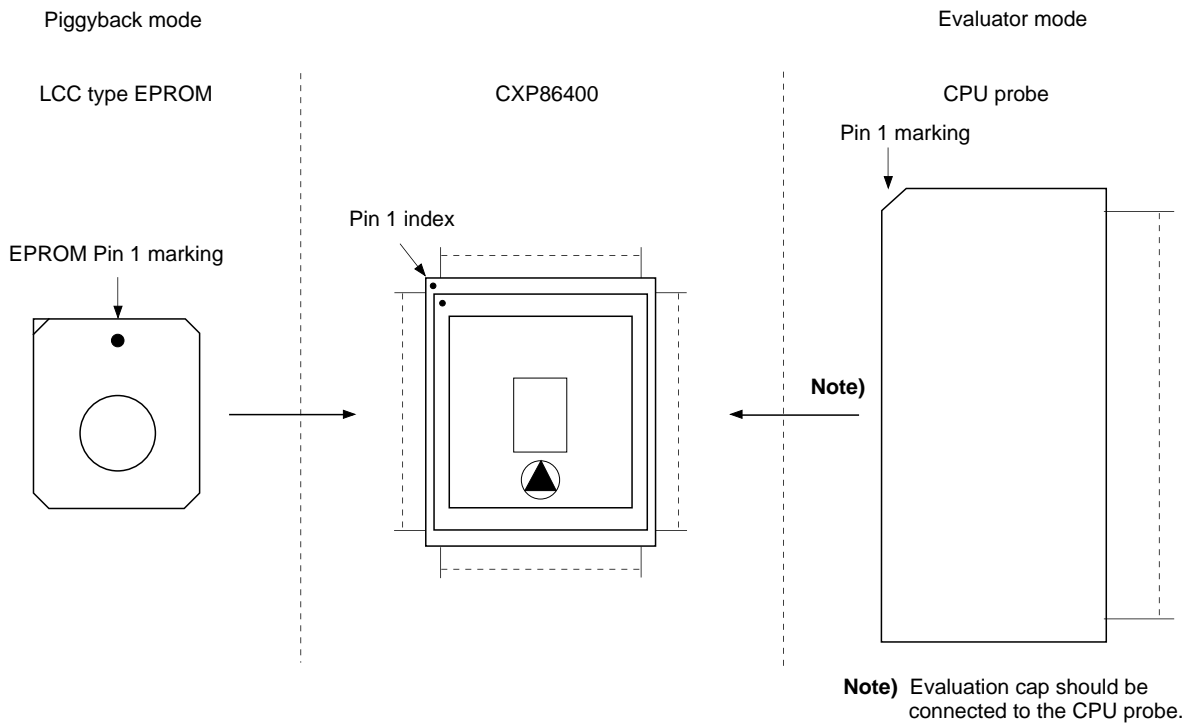
Product List

Optional item	Products									
	Mask									
	CXP86212	CXP86216	CXP86324	CXP86332	CXP86440	CXP86448	CXP86460	CXP86540	CXP86548	CXP86560
Package	64-pin plastic SDIP/QFP/LQFP									
Oscillation clock	16MHz									
ROM capacity	12K bytes	16K bytes	24K bytes	32K bytes	40K bytes	48K bytes	60K bytes	40K bytes	48K bytes	60K bytes
Reset pin pull-up resistor	Existent/Non existent									
Font data	User data									

Optional item	Products	
	Piggyback/evaluator	
	CXP86400-U01Q	CXP86490-U01S
Package	64-pin ceramic PQFP	64-pin ceramic PSDIP
Oscillation clock	16MHz	
ROM capacity	EPROM 60K bytes	
Reset pin pull-up resistor	Existent	
Font data	Fixed	EPROM 12K bytes

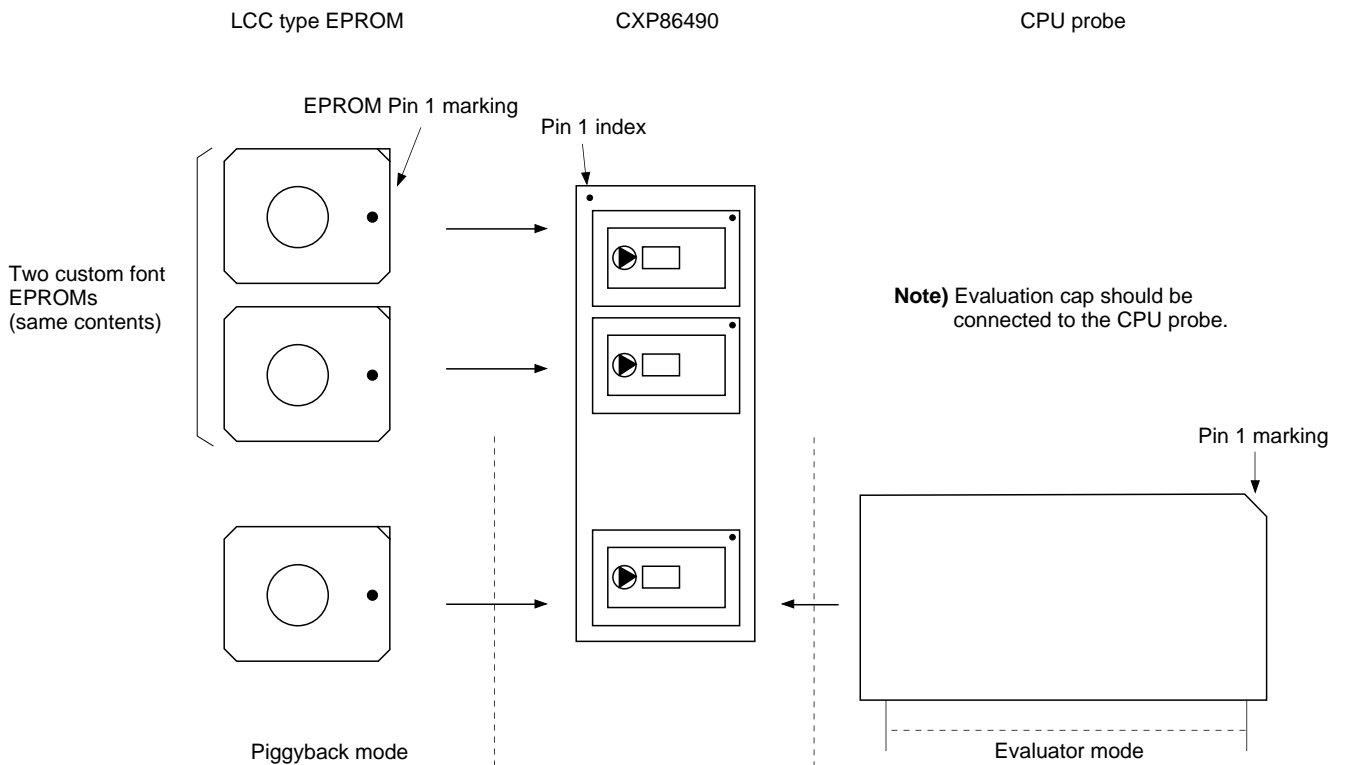
CXP86400

Piggyback mode and evaluator mode can be switched as shown below.



CXP86490

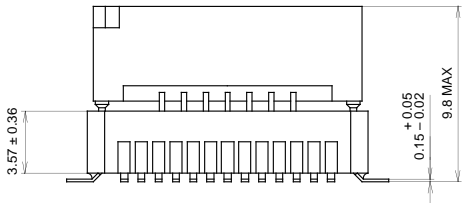
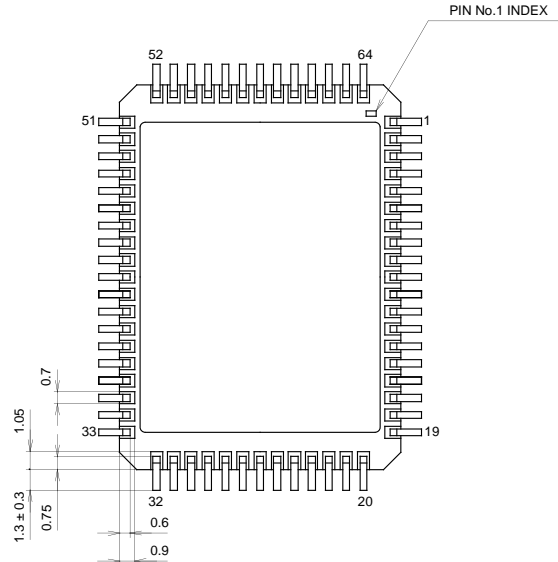
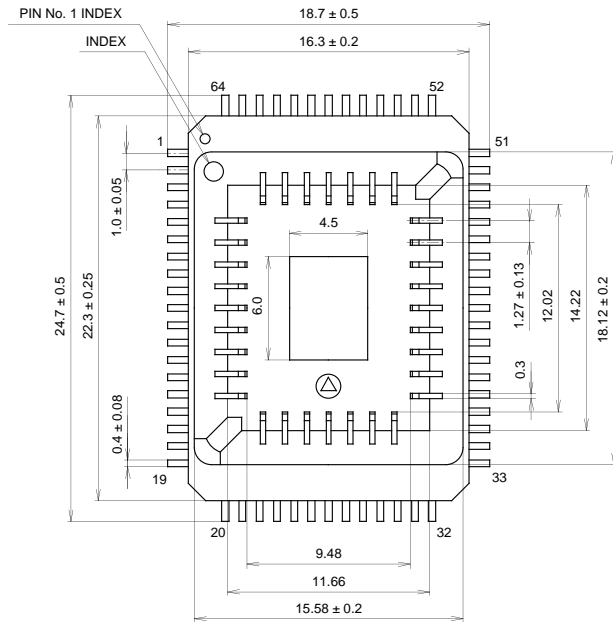
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Package Outline Unit: mm

CXP86400

64PIN PQFP (CERAMIC)



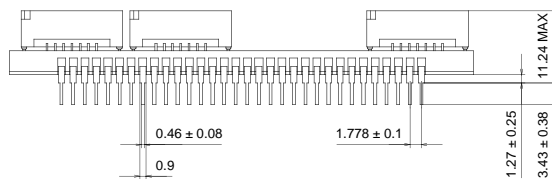
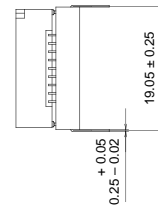
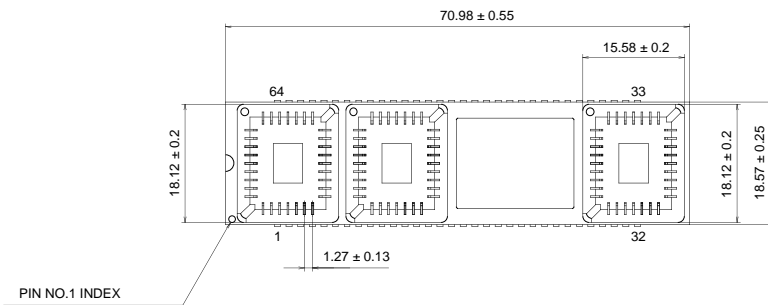
PACKAGE STRUCTURE

PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE WEIGHT	5.2g

SONY CODE	PQFP-64C-L02
EIAJ CODE	AQFP064-C-0000-B
JEDEC CODE	—

CXP86490

64PIN PSDIP (CERAMIC)



PACKAGE STRUCTURE

PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE WEIGHT	22.8g

SONY CODE	PSDIP-64C-02
EIAJ CODE	ADIP064-C-0750-B
JEDEC CODE	—