

SONY**CXP88100A****CMOS 8-bit Single Chip Microcomputer****Piggyback/
evaluator type****Description**

The CXP88100 is a CMOS 8-bit single chip micro-computer of piggyback/evaluator combined type, which is developed for evaluating the function of the CXP88132/88140/88152/88160/88216/88220/88224.

Features

- A wide instruction set (213 instructions) which cover 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 60Kbytes are available.)
 - 1296 bytes
- Incorporated RAM capacity
- Peripheral functions
 - A/D converter
 - 8-bit, 8-channel, successive approximation method (Conversion time of 20.0µs/16MHz)
 - Serial interface
 - Incorporated 8-bit and 8-stage FIFO (auto transfer for 1 to 8 bytes), 1 channel
 - 8-bit clock synchronous type, 1 channel
 - 8-bit timer, 8-bit timer/counter
 - 19-bit time base timer, 32kHz timer/counter
 - High precision timing pattern generator
 - PWM/DA gate output
 - PPG 8-pin, 21-stage programmable, RTG 5 pins, 2 channels
 - PWM output 12 bits 2 channels (Repetitive frequency 62.5kHz/16MHz)
 - DA gate pulse output 13 bits, 4 channels
 - Capstan FG, drum FG/PG, CTL input
 - Servo input control
 - VSYNC separator
 - FRC capture unit
 - PWM output
 - VISS/VASS circuit
 - Remote control receiving circuit
 - Fluorescent display panel controller/driver
 - Tri-state output
 - Pseudo HSYNC output function
 - High-speed head switching circuit
- Interruption
 - 22 factors, 15 vectors, multi-interruption possible
 - SLEEP/STOP
- Standby mode
- Package
 - 100-pin ceramic QFP

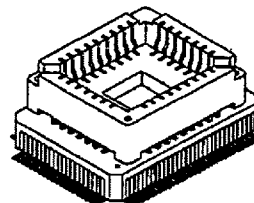
Note) Mask option depends on the type of the CXP88100A. Refer to the Products List for details.

Structure

Silicon gate CMOS IC

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100 pin PQFP (Ceramic)

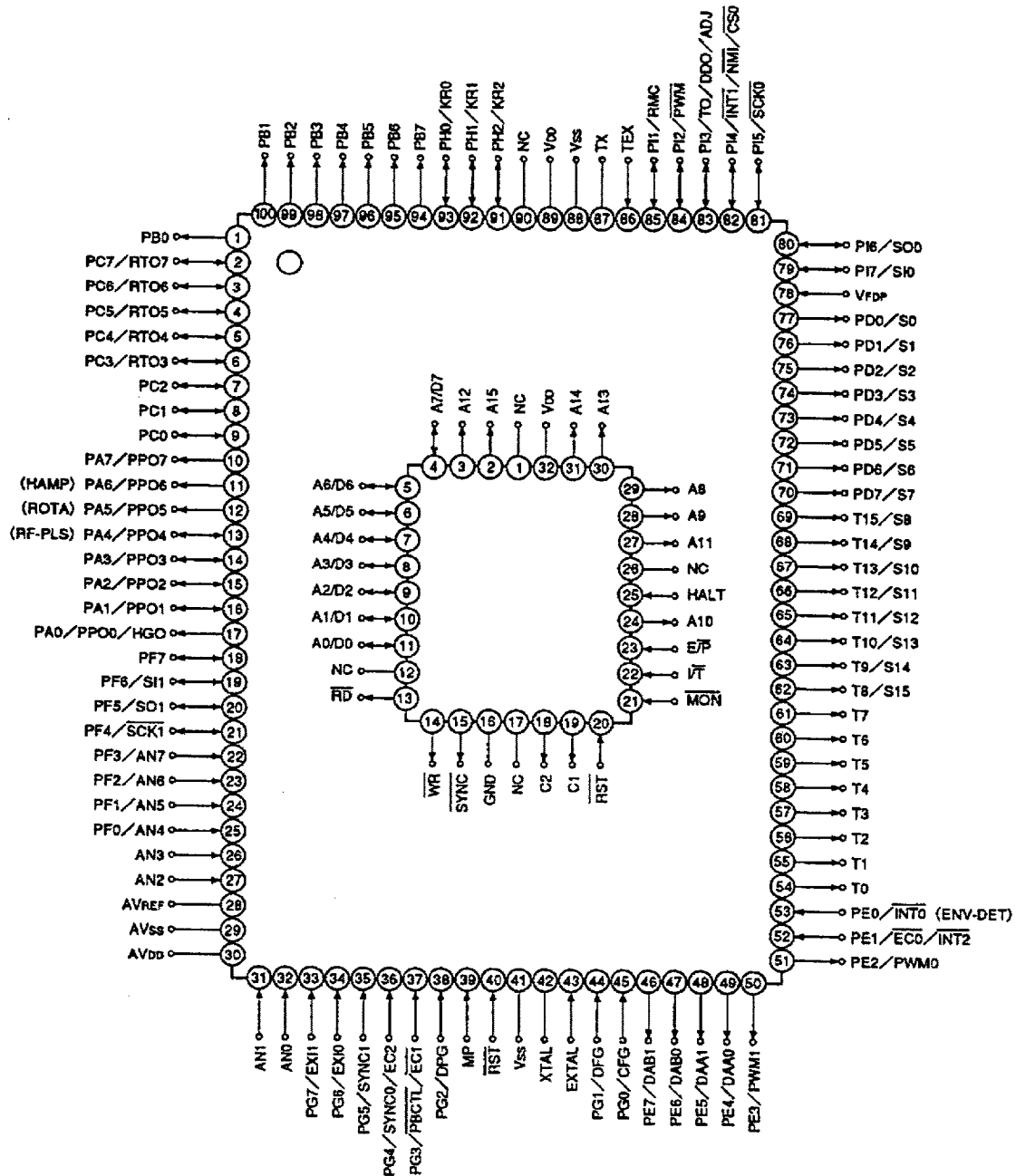


Pin diagram of the AT89C51F1 microcontroller. The pins are numbered 1 through 50, and their functions are listed as follows:

- Pin 1:** PB0
- Pin 2:** PC7/RT07
- Pin 3:** PC6/RT06
- Pin 4:** PC5/RT05
- Pin 5:** PC4/RT04
- Pin 6:** PC3/RT03
- Pin 7:** PC2
- Pin 8:** PC1
- Pin 9:** PC0
- Pin 10:** PA7/PPO7
- Pin 11:** (HAMP) PA6/PPO6
- Pin 12:** (ROTA) PA5/PPO5
- Pin 13:** (RF-PLS) PA4/PPO4
- Pin 14:** PA3/PPO3
- Pin 15:** PA2/PPO2
- Pin 16:** PA1/PPO1
- Pin 17:** PA0/PPO0/HG0
- Pin 18:** PF7
- Pin 19:** PF6/S11
- Pin 20:** PF5/SO1
- Pin 21:** PF4/SCK1
- Pin 22:** PF3/AN7
- Pin 23:** PF2/AN6
- Pin 24:** PF1/AN5
- Pin 25:** PF0/AN4
- Pin 26:** AN3
- Pin 27:** AN2
- Pin 28:** AVREF
- Pin 29:** AVSS
- Pin 30:** AVDD
- Pin 31:** AN1
- Pin 32:** AN0
- Pin 33:** PG7/EX1
- Pin 34:** PG6/EX0
- Pin 35:** PG5/SYNC1
- Pin 36:** PG4/SYNC0/EC2
- Pin 37:** PG3/PBCTL/EC1
- Pin 38:** PG2/DFG
- Pin 39:** MP
- Pin 40:** RST
- Pin 41:** VSS
- Pin 42:** XTAL
- Pin 43:** XTAL
- Pin 44:** PG1/DFG
- Pin 45:** PG0/CFG
- Pin 46:** PE7/DAB1
- Pin 47:** PE6/DAB0
- Pin 48:** PE5/DAA1
- Pin 49:** PE4/DAA0
- Pin 50:** PE3/PWM1
- Pin 80:** PH6/SO0
- Pin 79:** PI7/S10
- Pin 78:** VDDP
- Pin 77:** PD0/S0
- Pin 76:** PD1/S1
- Pin 75:** PD2/S2
- Pin 74:** PD3/S3
- Pin 73:** PD4/S4
- Pin 72:** PD5/S5
- Pin 71:** PD6/S6
- Pin 70:** PD7/S7
- Pin 69:** T15/S8
- Pin 68:** T14/S9
- Pin 67:** T13/S10
- Pin 66:** T12/S11
- Pin 65:** T11/S12
- Pin 64:** T10/S13
- Pin 63:** T9/S14
- Pin 62:** T8/S15
- Pin 61:** T7
- Pin 60:** T6
- Pin 59:** T5
- Pin 58:** T4
- Pin 57:** T3
- Pin 56:** T2
- Pin 55:** T1
- Pin 54:** T0
- Pin 53:** PE0/INT0 (ENV-DET)
- Pin 52:** PE1/EC0/INT2
- Pin 51:** PE2/PWM0
- Pin 90:** PH0/KR0
- Pin 89:** PH1/KR1
- Pin 88:** PH2/KR2
- Pin 87:** NC
- Pin 86:** VDD
- Pin 85:** VSS
- Pin 84:** TX
- Pin 83:** TEX
- Pin 82:** PI1/RMC
- Pin 81:** PI2/PWM
- Pin 80:** PI3/TO/DD0/ADJ
- Pin 79:** PI4/INT1/NMI/GS0
- Pin 78:** PI5/SCK0
- Pin 99:** PB1
- Pin 98:** PB2
- Pin 97:** PB3
- Pin 96:** PB4
- Pin 95:** PB5
- Pin 94:** PB6
- Pin 93:** PB7
- Pin 92:** PH0/KR0
- Pin 91:** PH1/KR1
- Pin 90:** PH2/KR2
- Pin 89:** NC
- Pin 88:** VDD
- Pin 87:** VSS
- Pin 86:** TX
- Pin 85:** TEX
- Pin 84:** PI1/RMC
- Pin 83:** PI2/PWM
- Pin 82:** PI3/TO/DD0/ADJ
- Pin 81:** PI4/INT1/NMI/GS0
- Pin 80:** PI5/SCK0

- Note)** 1. NC (Pin 90) is always connected to V_{DD}.
2. V_{SS} (Pins 41 and 88) are both connected to GND.
3. MP (Pin 39) is always connected to GND.

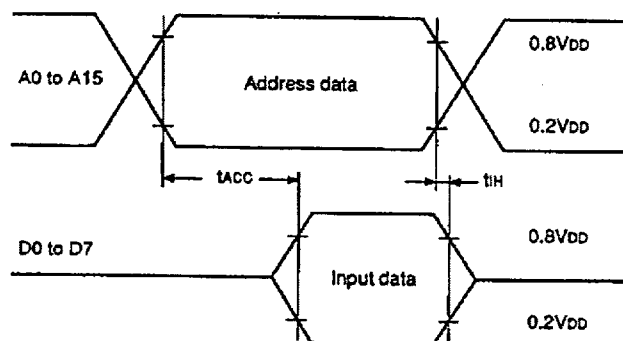
Pin Assignment in Evaluator Mode



- Note) 1. NC (Pin 90) is always connected to V_{DD}.
 2. VSS (Pins 41 and 88) are both connected to GND.
 3. MP (Pin 39) is always 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	Pin	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

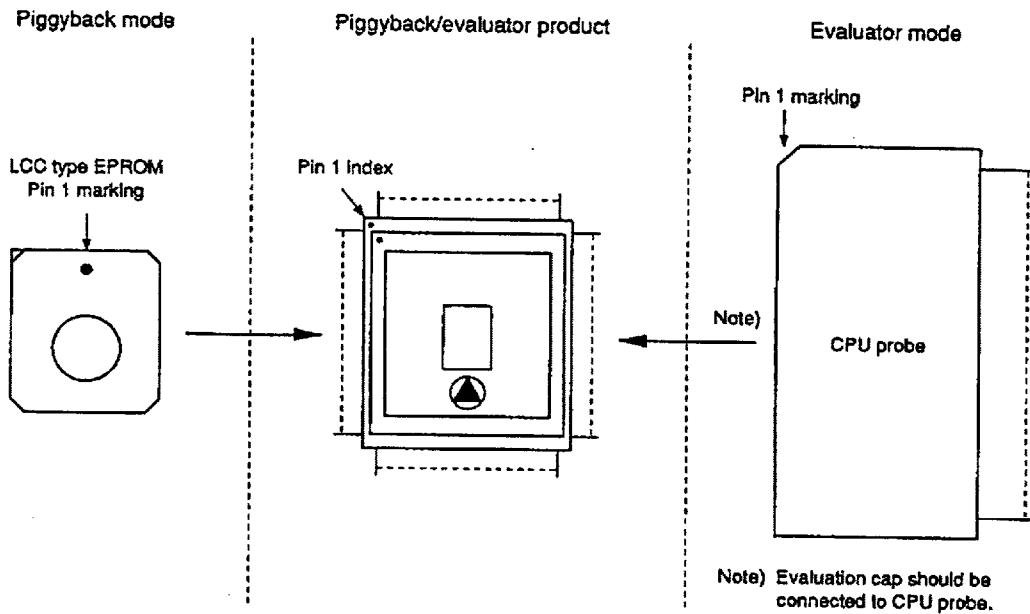

Products List

Option item	Products							
	Mask product							Piggyback/evaluator product
	CXP 88132	CXP 88140	CXP 88152	CXP 88160	CXP 88216	CXP 88220	CXP 88224	CXP88100A-U01Q
Package	100-pin plastic QFP							100-pin ceramic PQFP
ROM capacity	32K bytes	40K bytes	52K bytes	60K bytes	16K bytes	20K bytes	24K bytes	EPROM 60Kbytes
Pull-up resistor for reset pin	Existent/Non-existent							Existent
Input circuit format*1	CMOS schmitt/TTL schmitt							TTL schmitt
Pull-down resistor for high voltage drive pin	Existent/Non-existent							Existent*2

*1 On PG4/SYNC0 pin and PG5/SYNC1 pin, the input circuit format can be selected to every pin.

*2 Not exist on PD0/S0 to PD7/S7.

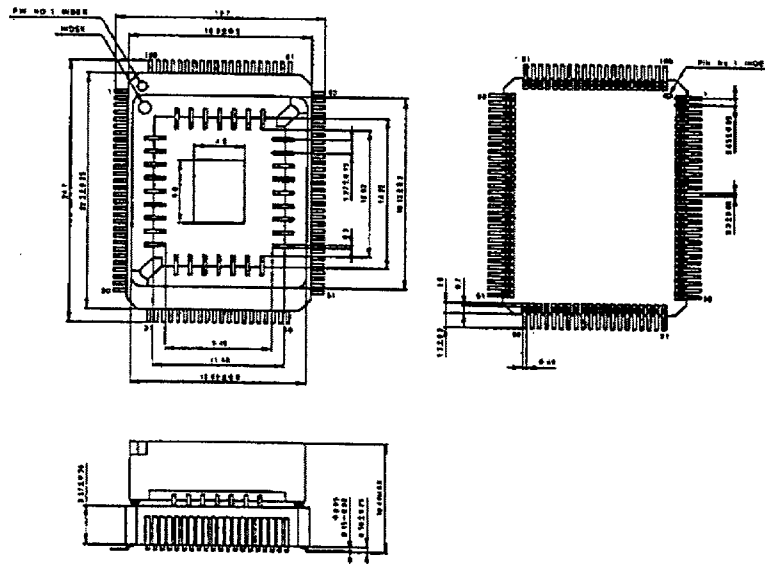
Piggyback mode/evaluator mode can be switched as shown below.



Package Outline

Unit : mm

100PIN PQFP (CERAMIC)



PACKAGE STRUCTURE

SONY CODE	PQFP-100C-L01
EIAJ CODE	AQFP100-C-0000-A
JEDEC CODE	

PACKAGE MATERIAL	CERAMIC
LEAD TREATMENT	GOLD PLATING
LEAD MATERIAL	42 ALLOY
PACKAGE WEIGHT	5.7g