

i-7188 *Palm-size Embedded Controller*

SERIES

I-7188/I-7188D, I-7188XA/I-7188XAD
I-7188XB/I-7188XBD, I-7188XC/I-7188XCD



Operating Temp.:
-25j~+75jC

Introduction

The I-7188 series controllers are designed for palm-size embedded systems that require high reliability, PC-compatibility, and compactness at a reasonable price. The controllers can be integrated into an OEM product as a processor core component. By building your product around I-7188 series controller, you reduce the time from design to market introduction, cut development costs, minimize technical risks, and deliver a more reliable product. I-7188 is a first generation product while the I-7188XA, I-7188XB and I-7188XC are all second-generation products. The major differences are communication ports, digital I/O port, and user defined I/O pins. Except I-7188, all I-7188XA/XB/XC support an I/O expansion bus.

I/O Expansion Bus and Expansion Board

The I-7188XA, I-7188XB and I-7188XC support an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as D/I, D/O, A/D, D/A, Timer/Counter, UART, flash memory, battery backup SRAM, AsicKey & other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. Our I/O expansion boards offer features in addition to those provided by the I-7188XA/XB/XC embedded controller. Expansion board can increase controller's I/Os and memory storage capabilities. The integrated modular design of the expansion board allows a fast, easy, and flexible way of upgrading our controller's capability. Each I/O expansion bus supports one expansion board.

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Embedded Controller Selection Guide

Model Number	I-7188 I-7188D	I-7188XA I-7188XAD	I-7188XB I-7188XBD	I-7188XC I-7188XCD
CPU (80188)	40M Hz	40M Hz	40M Hz/80MHz(NEW)	20.2752 MHz
SRAM	256KB	512KB	256KB* (can be up to 512KB for OEM version, see Note1)	128KB
Battery backup SRAM Board (128K Bytes or 512K Bytes)	No	X607: 128K Bytes memory expansion board X608: 512K Bytes memory expansion board	X607: 128K Bytes memory expansion board X608: 512K Bytes memory expansion board	X607: 128K Bytes memory expansion board X608: 512K Bytes memory expansion board
Flash	256KB/512KB	512KB	512KB	256KB (can be up to 512KB for OEM version; see Note1)
COM Ports	4	4	2 (Note3)	2
Program download	Yes, COM4 (Note 4)	Yes, COM4 (Note 4)	Yes, COM1 (Note 4)	Yes, COM1 (Note 4)
Modem Control	COM1	COM1	No	No
COM2	Non-isolated	3000V Isolation	Non-isolated (OEM version can be isolated, see Note1)	Non-isolated (OEM version can be isolated, see Note1)
Self-Tuner on RS-485	No	COM1 & COM2	COM1 & COM2	COM1 & COM2
Real Time Clock	Yes	Yes	Yes	No (OEM version can be available, Note1)
EEPROM	2K bytes	2K bytes (Can be up to 128K Bytes for OEM customers)	2K bytes (Can be up to 128K Bytes for OEM customers)	2K bytes (Can be up to 128K Bytes for OEM customers)
I/O expansion Bus	No	Yes	Yes	Yes
User Defined Pins	No	No	14	3
D/I (3.5V~30V)	No	2 channels+INIT*	1 channel+INIT*	2 channels+INIT*
D/O (100mA, 30V)	No	2 channels	1 channel	3 channels
Support 64-bit hardware unique serial number	No	Yes	Yes	No
7-segment Display	7188D only	7188XAD only	7188XBD only	7188XCD only
Operating system	MiniOS7	MiniOS7	MiniOS7	MiniOS7
Programming Language	TC/MSC	TC/MSC	TC/MSC	TC/MSC
Power consumption	2.0W (7188) 3.0W (7188D)	2.0W (7188XA) 3.0W (7188XAD)	2.0W (7188XB) 3.0W (7188XBD)	2.0W (7188XC) 3.0W (7188XCD)

Note1: Call manufacturer or distributor for detail information

Note2: Can choose appropriate I/O expansion board to add D/I/O.

Note3: COM1 can be used as 5-wire RS-232 port or 2-wire RS-485 port

Note4: The default console port can be set to any one of the com ports (MiniOS7 2.0 or later)

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Features

- 80188-40 embedded CPU
- Built-in RTC, NVRAM, EEPROM
- Built-in COM port: COM1, COM2, COM3, COM4
- Built-in watchdog timer
- Built-in power protection circuit
- Built-in RS-485 network protection circuit
- Built-in MiniOS7
- Program download port: COM4

Applications

- Factory Automation
- Protocol Converter
- Building Automation

Ordering Information

- **I-7188/512:**
Embedded Controller with 512K flash
- **I-7188D/512:**
I-7188/512 with Display
- **I-7188/256:**
Embedded Controller with 256K flash
- **I-7188D/256:**
I-7188/256 with Display

Options

- **PWR-24/110:**
Wall-plug Power Adaptor/110VAC/
60Hz/3.6W
- **PWR-24/220:**
Wall-plug Power Adaptor/220VAC/
50Hz/3.6W
- **PWR-24/230:**
Wall-plug Power Adaptor/230VAC/
50Hz/3.6W

Specifications

- CPU: 80188-40 compatible
- SRAM: 256K bytes
- Flash Memory: 256/512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (9 pins) or RS-485
- COM2: RS-485
- COM3: RS-232 (3 pins)
- COM4: RS-232 (3 pins)
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated
10~30 VDC power
- Power Consumption:
2.0W for I-7188/512; 3.0W for
I-7188D/512
- Dimensions:
123mm x 72mm x 33mm

i-7188XA *Expandable Embedded Controller*

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Ordering Information

- **I-7188XA:**
Embedded Controller
- **I-7188XAD:**
I-7188XA with Display

Options

- **PWR-24/110:**
Wall-plug Power Adaptor/110VAC/
60Hz/3.6W
- **PWR-24/220:**
Wall-plug Power Adaptor/220VAC/
50Hz/3.6W
- **PWR-24/230:**
Wall-plug Power Adaptor/230VAC/
50Hz/3.6W
- **X600:**
4 mega bytes Flash memory board
- **X601:**
8 mega bytes Flash memory board
- **X607:**
128K bytes SRAM board
- **X608:**
512K bytes SRAM board

Features

- 80188-40 Compatible
- Built-in RTC, NVRAM, EEPROM
- Built-in COM port: COM1, COM2, COM3, COM4
- 3000V Isolation voltage on RS-485 port
- Support I/O expansion bus interface
- Two digital input channels
- Two Open-collector output Channels
- Built-in self-tuner ASIC chip for RS-485 port
- Built-in MiniOS7
- Program download port: COM4

Specifications

- CPU: 80188-40
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (9 pins) or RS-485 Jumper Select
- COM2: RS-485
- COM3: RS-232 (3 pins)
- COM4: RS-232 (3 pins)
- Digital Input channels: 2
- Digital Output channels: 2
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated 10~30 VDC power
- Power Consumption: 2.0W for I-7188XA; 3.0W for I-7188XAD
- Dimensions: 123mm x 72mm x 33mm

i-7188XB *Expandable Embedded Controller*

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Ordering Information

- **I-7188XB:**
Embedded Controller with 512K Flash and 256K SRAM
- **I-7188XBD:**
I-7188XB-256 with Display
- OEM Version**
- **I-7188XB/512:**
Embedded Controller with 512K Flash and 512K SDRAM
- **I-7188XBD/512:**
I-7188XB-512 with Display
- Options**
- **PWR-24/110:**
Wall-plug Power Adaptor/110VAC/60Hz/3.6W
- **PWR-24/220:**
Wall-plug Power Adaptor/220VAC/50Hz/3.6W
- **PWR-24/230:**
Wall-plug Power Adaptor/230VAC/50Hz/3.6W
- **X600:**
4 mega bytes Flash memory board
- **X601:**
8 mega bytes Flash memory board
- **X607:**
128K bytes SRAM board
- **X608:**
512K bytes SRAM board

Features

- 64-bit hardware unique serial number inside
- User defined DI / DO
- COM driver support interrupt & 1K QUEUE input & output buffer
- COM port: COM1, COM2
- Built-in RTC, NVRAM, EEPROM
- One DI and one DO channel
- Built-in I/O expansion bus interface
- Can add on one expansion board
- Built-in self-tuner ASIC chip for RS-485 port
- Optional 7-segment LED display
- Built-in ICP DAS's MiniOS7
- Program download port: COM1

Specifications

- CPU: 80188-40 Compatible
- SRAM: 256K bytes (for I-7188XB)
512K bytes (for I-7188XB/512)
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input channel: 1
- Digital Output channel: 1
- User defined I/O pins: 14
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated 10~30 VDC power
- Power Consumption:
2.0W for I-7188XB;
3.0W for I-7188XBD
- Dimensions:
123mm x 72mm x 33mm

i-7188XG *Expandable ISaGRAF Embedded Controller*

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Ordering Information

- **I-7188XG:**
 - ISaGRAF Embedded Controller
- **I-7188XGD:**
 - ISaGRAF Embedded Controller with Display
- **Options**
- **PWR-24/110:**
 - Wall-plug Power Adaptor/110VAC/60Hz/3.6W
- **PWR-24/220:**
 - Wall-plug Power Adaptor/220VAC/50Hz/3.6W
- **PWR-24/230:**
 - Wall-plug Power Adaptor/230VAC/50Hz/3.6W
- **X607:**
 - 128K bytes SRAM board
- **X608:**
 - 512K bytes SRAM board
- **ISaGRAF-256:**
 - ISaGRAF Workbench Software up to 256 I/O Tags.
- **ISaGRAF-256-E:**
 - ISaGRAF Workbench Software up to 256 I/O Tags + one English Manual.
- **ISaGRAF-256-C:**
 - ISaGRAF Workbench Software up to 256 I/O Tags + one Chinese Manual.

Features

- Include features of I-7188XB
- Built-in ISaGRAF driver & License
- Programming Languages:
 - IEC61131-3: LD, ST, FBD, SFC, IL
 - Flow Chart.
- Modbus RTU (RS232/RS485)
 - protocol to integrate to SCADA
 - softwares and HMI.
- Modbus Master protocol (RS485) to
 - link to other devices which support
 - Modbus RTU protocol.
- All I-7000 & I-87K series I/O modules
 - can be integrated as remote I/O modules.
- Controller to Controller Data Exchange
 - via RS485.
- Support ICP DAS's MMICON - Man
 - Machine Interface
- Data log: data, date & time can be
 - stored at X607/X608, and then PC
 - can load these data via RS232/RS485.
- SMS: When integrating with a GSM Modem,
 - Short Message Service is available.

Specifications

- CPU: 80188-40 Compatible
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input channel: 1
- Digital Output channel: 1
- User defined I/O pins: 14
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated
 - 10~30 VDC power
- Power Consumption:
 - 2.0W for I-7188XG;
 - 3.0W for I-7188XGD
- Dimensions:
 - 123mm x 72mm x 33mm

i-7188XC *Expandable Embedded Controller*

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Ordering Information

- **I-7188XC:**
- Embedded Controller
- **I-7188XCD:**
- I-7188XC with Display

Options

- **PWR-24/110:**
- Wall-plug Power Adaptor/110VAC/
□ 60Hz/3.6W
- **PWR-24/220:**
- Wall-plug Power Adaptor/220VAC/
□ 50Hz/3.6W
- **PWR-24/230:**
- Wall-plug Power Adaptor/230VAC/
□ 50Hz/3.6W
- **X600:**
- 4 mega bytes Flash memory board
- **X601:**
- 8 mega bytes Flash memory board
- **X607:**
- 128K bytes SRAM board
- **X608:**
- 512K bytes SRAM board

Features

- 80188-20 embedded CPU
- Cost-effective version of I-7188 □ series
- User defined DI / DO
- COM driver support interrupt & □ 1K QUEUE input & output buffer
- COM port: COM1, COM2
- Built-in EEPROM
- Built-in I/O expansion bus
- Can add on one expansion board
- Built-in self-tuner ASIC chip for □ RS-485 port
- Optional 7-segment LED display
- Built-in ICP DAS's MiniOS7
- Program download port: COM1

Specifications

- CPU: 80188-20™ or compatible
- SRAM: 128K bytes
- Flash Memory: 256K bytes
- EEPROM: 2048 bytes
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input Channels: 3
- Logic low level: 0V~1V
- Logic high level: 3.5V~30V
- Digital Output Channels: 3
- Open collector to 30V Max.
- Output current: 100mA
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated
- 10~30 VDC power
- Power Consumption:
- 2.0W for I-7188XC;
- 3.0W for I-7188XCD
- Dimensions:
- 119mm x 72mm x 33mm