I-8072

User's Manual

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

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1. General Introduction

The key component of 8072
1. A parallel printer interface
2. Two X-Sockets
3. Eight LED Indicators

Note: the 8072 can be installed to slot_0, 1, 2, and 4,5,6,7. It can not be installed in the slot_3.

1. A parallel printer interface
- It can be used to link to dot-matrix printer or laser printer
- The software support text mode only.
- The source code of driver is open for user's modification
- User can modify the given driver to support graphic mode of his special printer

2. Two X-Sockets
- These 2 X-Sockets can support S256 / S512 & AsicKey.
- The X-Socket does not support Flash memory, **8073 supports flash memory solution.**
- User can install two S256 or one S256 & one AsicKey
- User can install two S512 or one S512 & one AsicKey
- The software driver for AsicKey is only open for AsicKey user.

3. Eight LED Indicators:
- No pre-defined definition
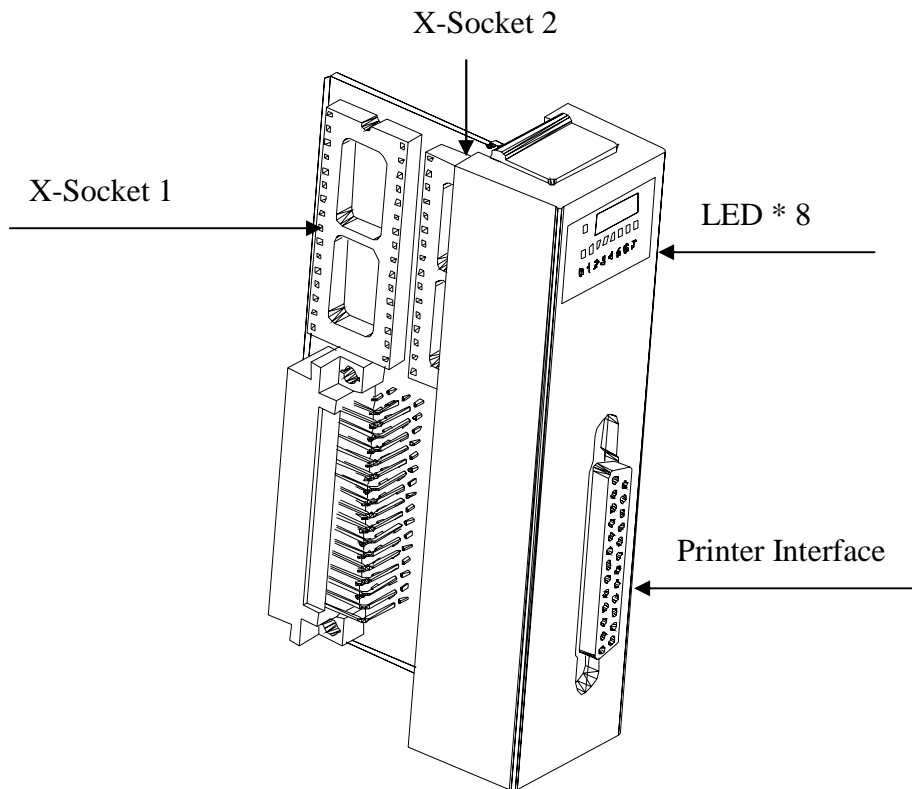- User can use all of these 8 LEDs based on his special requirements

4. S256 and S512 can be installed to 8072 or back plane of 8000 (refer to Sec. 9.9.4 of "8410/8411/8810/8811 User's Manual"). The library is different. For S256 and S512 in 8072, refer **to cd/napdos/8000/common/minios7/demo/bc/8072/*.***
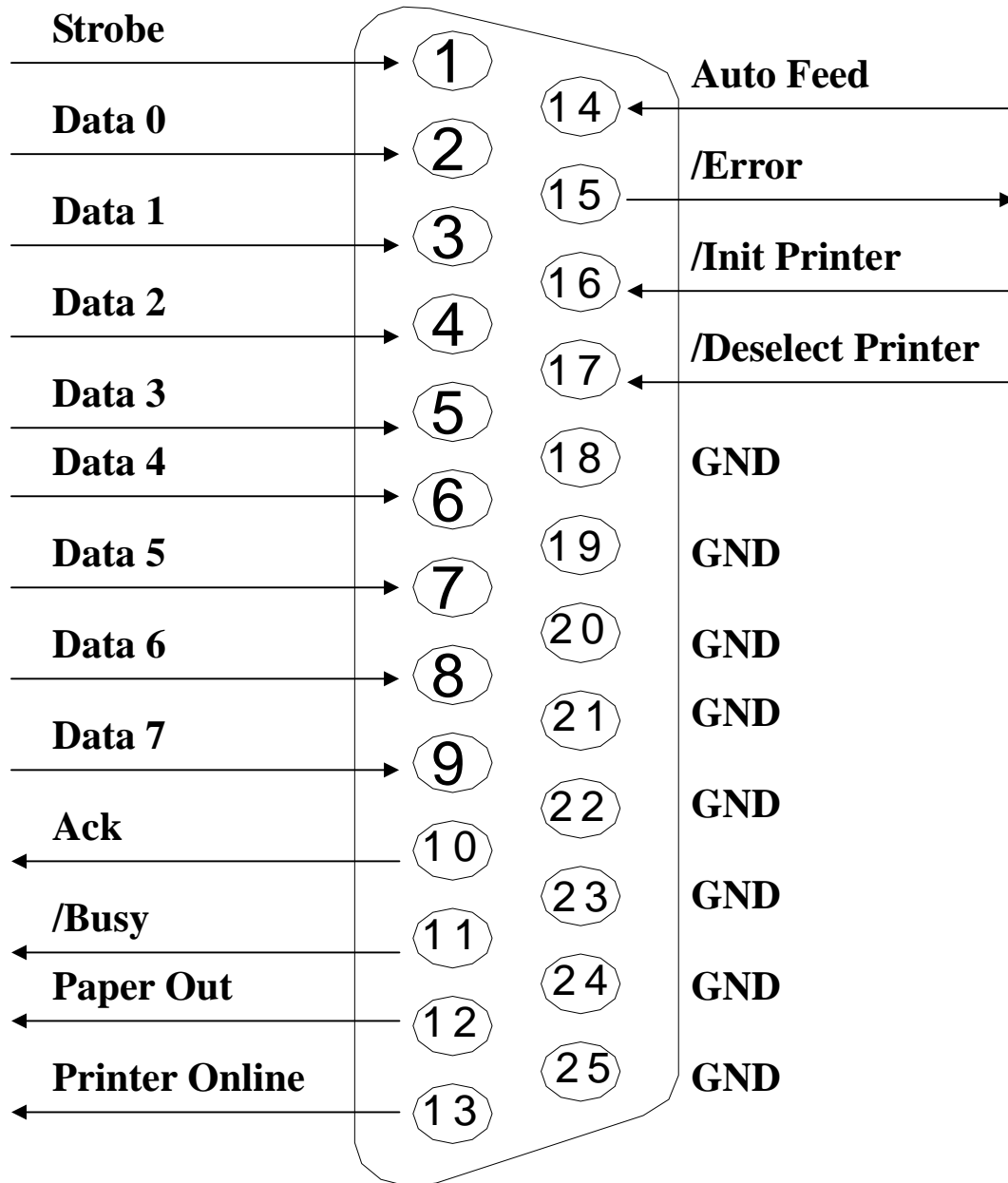Or refer to our FTP site:
ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/8000/common/minios7/demo/bc/8072/

2.   Pin Assignments

● Board   Layout

X-Socket 2

X-Socket 1

LED * 8

Printer Interface

● Pin Assignment of printer port

Strobe →	1	14 ← **Auto Feed**
Data 0 →	2	15 → **/Error**
Data 1 →	3	16 ← **/Init Printer**
Data 2 →	4	17 ← **/Deselect Printer**
Data 3 →	5	18 **GND**
Data 4 →	6	19 **GND**
Data 5 →	7	20 **GND**
Data 6 →	8	21 **GND**
Data 7 →	9	22 **GND**
Ack ←	10	23 **GND**
/Busy ←	11	24 **GND**
Paper Out ←	12	25 **GND**
Printer Online ←	13	

3. Software Driver

Init8072

- **Description :**

  This subroutine will detect & Initialize the installed 8072 module.

- **Syntax :**

  WORD Init8072 (WORD SlotNum);

- **Parameter :**

  SlotNum : [Input] Slot Number. From 0 ~ 7
  (Note: the 8072 can not be installed to slot_3)

- **Return:**

  0: One 8072 is detected & initialized
  1: SlotNum error, must from 0 to 7
  2: Read ID Error, can not find an 8072 in this slot

- **Note:**

  1. Call this function, Init8072 (SlotNum), before calling the other 8072 functions.

ShowLed8072

- **Description :**

   Write to LED.

- **Syntax :**

   WORD ShowLed8072 (WORD SlotNum, WORD LedValue);

- **Parameter :**

   SlotNum : [Input] Slot Number. From 0 ~ 7
   (Note: the 8072 can not be installed to slot_3)
   LedValue: [Input] write value of LED, from 0x00 to 0xff

- **Return:**

   0: Write OK
   1: SlotNum error, must from 0 to 7
   3: no 8072 initialization

- **Note:**

   1. Call **Init8072 (SlotNum)** before calling this function

ResetPrinter8072

- **Description :**

   Send a low pulse to pin 16, /Init Printer, of printer. It can be used to reset this printer.

- **Syntax :**

   WORD ResetPrinter8072 (WORD SlotNum);

- **Parameter :**

   SlotNum : [Input] Slot Number. From 0 ~ 7
   (Note: the 8072 can not be installed to slot_3)

- **Return:**

   0: Write OK
   1: SlotNum error, must from 0 to 7
   3: no 8072 initialization

- **Note:**

   1. Call **Init8072 (SlotNum)** before calling this function

ReadPrinterStatus8072

- **Description :**

  Read the status byte of printer.

- **Syntax :**

  WORD ReadPrinterStatus8072 (WORD SlotNum, WORD *Status);

- **Parameter :**

  SlotNum   : [Input] Slot Number. From 0 ~ 7
  (Note: the 8072 can not be installed to slot_3)
   Status: [Input] address of status byte

- **Return:**

  0: Write OK
  1: SlotNum error, must from 0 to 7
  3: no 8072 initialization

- **Note:**

  1. Call **Init8072 (SlotNum)** before calling this function

Pin definitions of Printer Status Register (status byte)

Bit Number	Name	Description
0	N/A	Reserved
1	N/A	Reserved
2	N/A	Reserved
3	/Error	Normal=1, no error
4	PrinterOnline	Normal=1, printer is online
5	Paper Out	Normal=0, printer has paper
6	ACK	Normal=1
7	/Busy	Normal=1, printer not busy

PrintChar8072

- **Description :**

  Print out one character.

- **Syntax :**

  WORD PrintChar8072 (WORD SlotNum, char ch);

- **Parameter :**

  SlotNum : [Input] Slot Number. From 0 ~ 7
  (Note: the 8072 can not be installed to slot_3)
  ch: [Input] value to print

- **Return:**

  0: Write OK
  1: SlotNum error, must from 0 to 7
  3: no 8072 initialization

- **Note:**

  1. Call **Init8072 (SlotNum)** before calling this function

PrintStr8072

- **Description :**

  Print out a string of characters.

- **Syntax :**

  WORD PrintStr8072 (WORD SlotNum, char szBuf []);

- **Parameter :**

  SlotNum   : [Input] Slot Number. From 0 ~ 7
  (Note: the 8072 can not be installed to slot_3)
  szBuf: [Input] starting address of character string

- **Return:**

  0: Write OK
  1: SlotNum error, must from 0 to 7
  3: no 8072 initialization

- **Note:**

  1. Call **Init8072 (SlotNum)** before calling this function

ReadSramByte8072

- **Description :**

  Read one byte of **S256** installed in the X-Socket of 8072.

  Read one byte of **S512** installed in the X-Socket of 8072.

- **Syntax :**

  WORD ReadSramByte8072 (WORD SlotNum, WORD U1U2,

        DWORD Address, char *ch);

- **Parameter :**

  SlotNum   : [Input] Slot Number. From 0 ~ 7

  (Note: the 8072 can not be installed to slot_3)

  U1U2: [Input] U1U2=1=X_Socket1, U1U2=2=X_Socket2

  Address: [Input] address of byte to read, from 0x00 to 0x3ffff for S256

  Address: [Input] address of byte to read, from 0x00 to 0x7ffff for S512

  ch: address of read data

- **Return:**

  0: Write OK

  1: SlotNum error, must from 0 to 7

  3: no 8072 initialization

- **Note:**

  1. Call **Init8072 (SlotNum)** before calling this function

WriteSramByte8072

- **Description :**

   Write one byte to **S256** installed in the X-Socket of 8072.
   Write one byte to **S512** installed in the X-Socket of 8072.

- **Syntax :**

   WORD WriteSramByte8072 (WORD SlotNum, WORD U1U2,
           DWORD Address, char ch);

- **Parameter :**

   SlotNum : [Input] Slot Number. From 0 ~ 7
   (Note: the 8072 can not be installed to slot_3)
   U1U2: [Input] U1U2=1=X_Socket1, U1U2=2=X_Socket2
   Address: [Input] address of byte to read, from 0x00 to 0x3ffff for S256
   Address: [Input] address of byte to read, from 0x00 to 0x7ffff for S512
   ch: data to write

- **Return:**

   0: Write OK
   1: SlotNum error, must from 0 to 7
   3: no 8072 initialization

- **Note:**

   1. Call **Init8072 (SlotNum)** before calling this function

ReadSramStatus8072

- **Description :**

  Read the status byte of S256 installed in the X-Socket of 8072.

  Read the status byte of S512 installed in the X-Socket of 8072.

- **Syntax :**

  WORD ReadSramStatus8072 (WORD SlotNum, WORD U1U2, char *ch);

- **Parameter :**

  SlotNum   : [Input] Slot Number. From 0 ~ 7

  (Note: the 8072 can not be installed to slot_3)

  U1U2: [Input] U1U2=1=X_Socket1, U1U2=2=X_Socket2

  ch: address of status byte

- **Return:**

  0: Write OK

  1: SlotNum error, must from 0 to 7

  3: no 8072 initialization

- **Note:**

  1. Call **Init8072 (SlotNum)** before calling this function

Pin definitions of Printer Status Register (status byte)

Bit Number	Name	Description
0	Battery status	0=Low Battery, 1= High Battery
1	S256 or S512	0=S256, 2=S512
2 ~ 7	N/A	Reserved

4.   I/O Control Register

Use Ti1 to Select Printer/X_Socket
- The addressing space of printer & X-Socket is overlapped. So we use Ti1 to select printer/X_Socket
- SetTi1High → select printer & I/O control register
- SetTi1Low → read/write to X_Socket

Address Mapping of I/O Controller Register (8-bit wide)

Offset Address	Name	Description
0, read	Card ID Register	For 8072, it is 0x30
4, write	Printer Write Data Register	write data to printer
5, read	Printer Status Register	Read the status of printer
6, write	Printer Controller Register	Control printer & LED
7. write	X_Socket Control Register	Control X_Socket & LED

Printer Write Data Register, base+4, writes

Bit Number	Name	Description
0	Data_0	Bit_0 of printed data
1	Data_1	Bit_1 of printed data
2	Data_2	Bit_2 of printed data
3	Data_3	Bit_3 of printed data
4	Data_4	Bit_4 of printed data
5	Data_5	Bit_5 of printed data
6	Data_6	Bit_6 of printed data
7	Data_7	Bit_7 of printed data

Printer Status Register, base+5, read

Bit Number	Name	Description
0	N/A	Reserved
1	N/A	Reserved
2	N/A	Reserved
3	/Error	Normal=1, no error
4	PrinterOnline	Normal=1, printer is online
5	Paper Out	Normal=0, printer has paper
6	ACK	Normal=1
7	/Busy	Normal=1, printer not busy

Printer Control Register, base+6, writes

Bit Number	Name	Description
0	Strobe	Normal=0, 1=send one byte to printer
1	Auto Feed	Normal=0, 1=automatic line feed after CR
2	/Init Printer	Normal=1, 0=initialize printer
3	/Deselect Printer	Normal=1, 0=deselect printer
4	LED5	Send to led
5	LED6	Send to led
6	LED7	Send to led
7	LED8	Send to led

X_Socket Control Register, base+7, writes

Bit Number	Name	Description
0	A9	To X_Socket
1	A12	To X_Socket
2	S0	0=select X_Socket_1, S0 & S1 can not both 0
3	S1	0=select X_Socket_2, S0 & S1 can not both 0
4	LED1	Send to led
5	LED2	Send to led
6	LED3	Send to led
7	LED4	Send to led