

PCI Bus CPD

HPCI -CPD5 016

NC



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**CPD**

**CPD530          PCI-Bus**

HPCI-CPD5016

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Windows98 WindowsNT 4.0 Windows2000 WindowsXP Home Edition WindowsXP Professional Windows Vista Windows7,  
VisualC++, Visual Basic, VisualC#    Microsoft Corporation

1-8-11

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1 23 2011 4 21



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# **1.**

## **1.1**

1.

2.

## **1.2**

1.

2.

3.

4.

### 1.3

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#### 1.3.1

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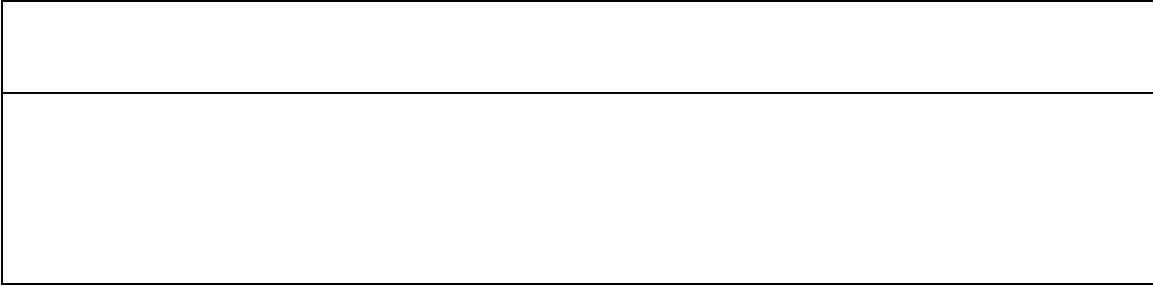
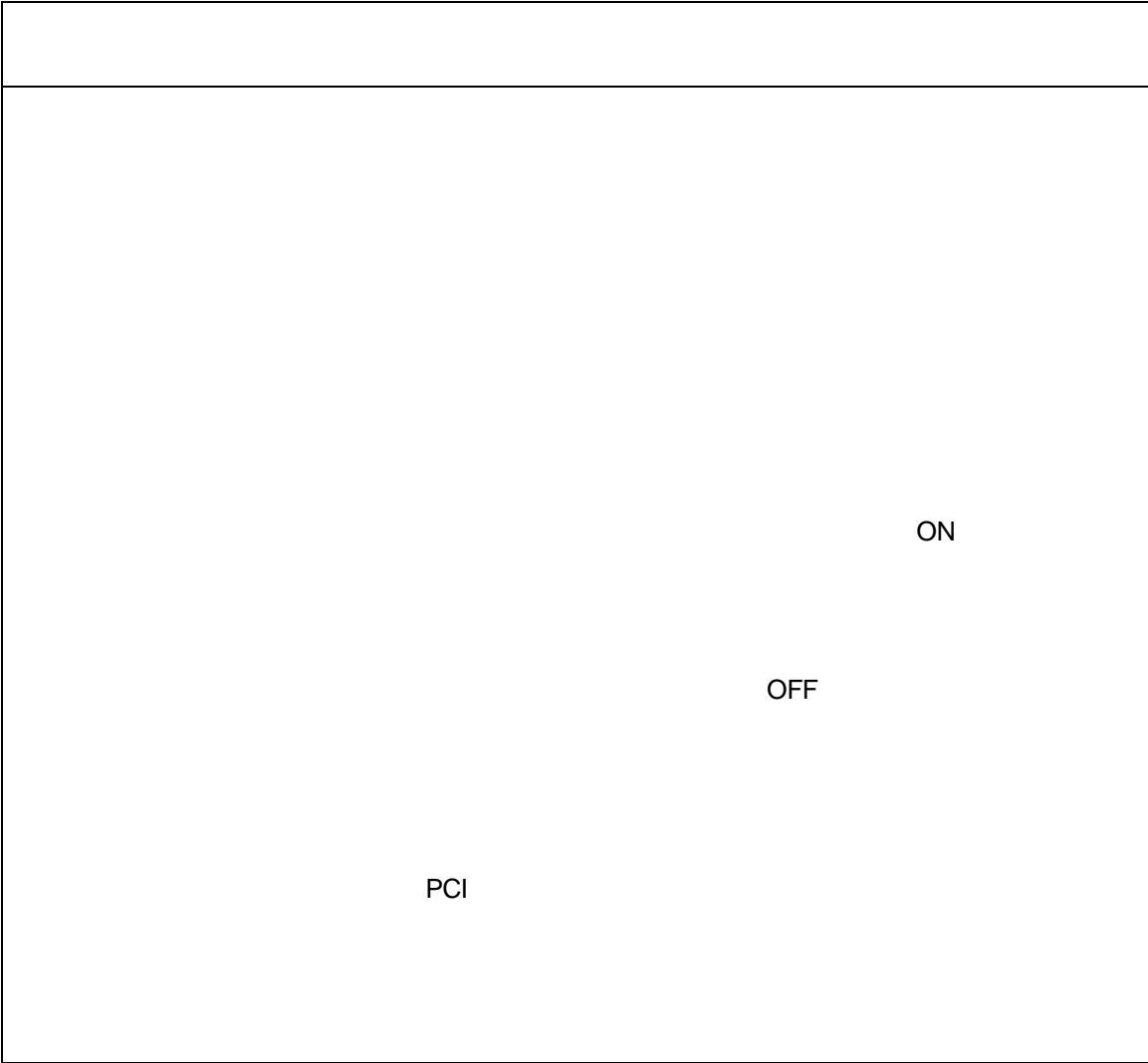
#### 1.3.2 Bus

|   |
|---|
|   |
| PCI Local Bus Specification Rev.2.2( )<br>PCI Local Bus Specification Rev. 2.2( ) |

#### 1.3.3

|   |       |        |           |
|---|-------|--------|-----------|
|   |       |        |           |
| ' | 0     | +50    |           |
| ' | 20%RH | 85%RH( | )         |
| ' | -15   | +75    |           |
| ' | 10%RH | 90%RH( | )         |
| ' |       |        |           |
| ' |       | 3000m  | (300m 2 ) |

1.3.4



1.3.5



1.3.6



**1.3.7**

|  |
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|  |

**1.3.8**

|  |
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|  |
|  |

**1.3.9**

|  |
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|  |
|  |

## 1.4

CPD

1. < >

CPD

(1)

(2)

(3)

(4)

2. CPD < >

CPD

(1)

VC++ VB VC# DOS

(2)

/

VC++ VB VC# DOS

3. CPD < >

CPD

(1)CPD

(2)CPD

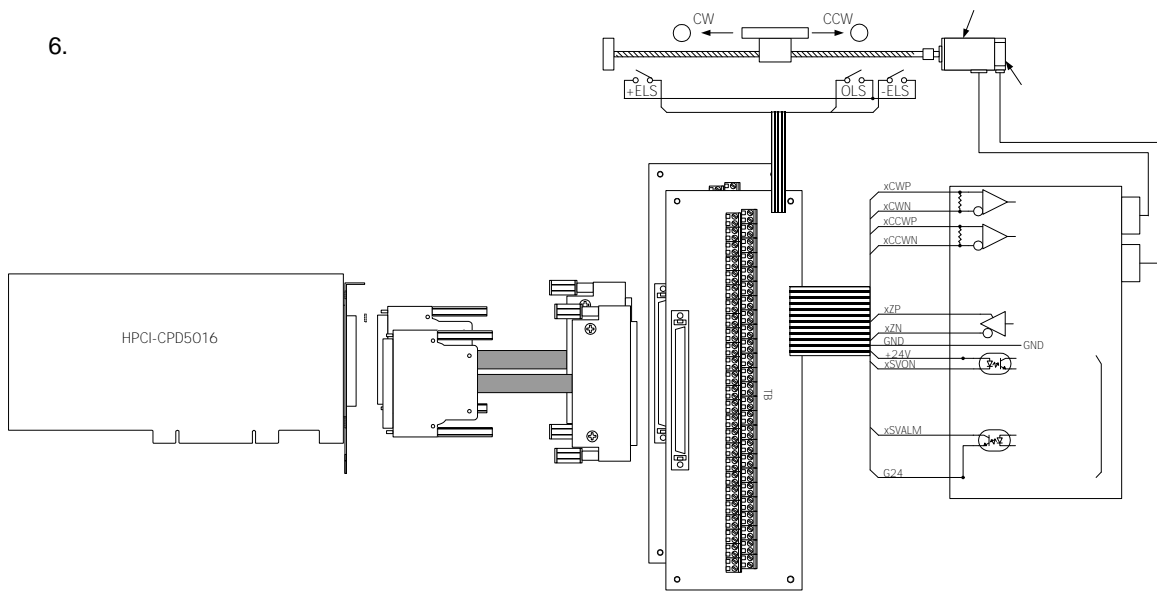
(3)PCL6045

(4)



## 2.4

6.



2.4-1

## 2.5

24V      12V      5V  
4.2

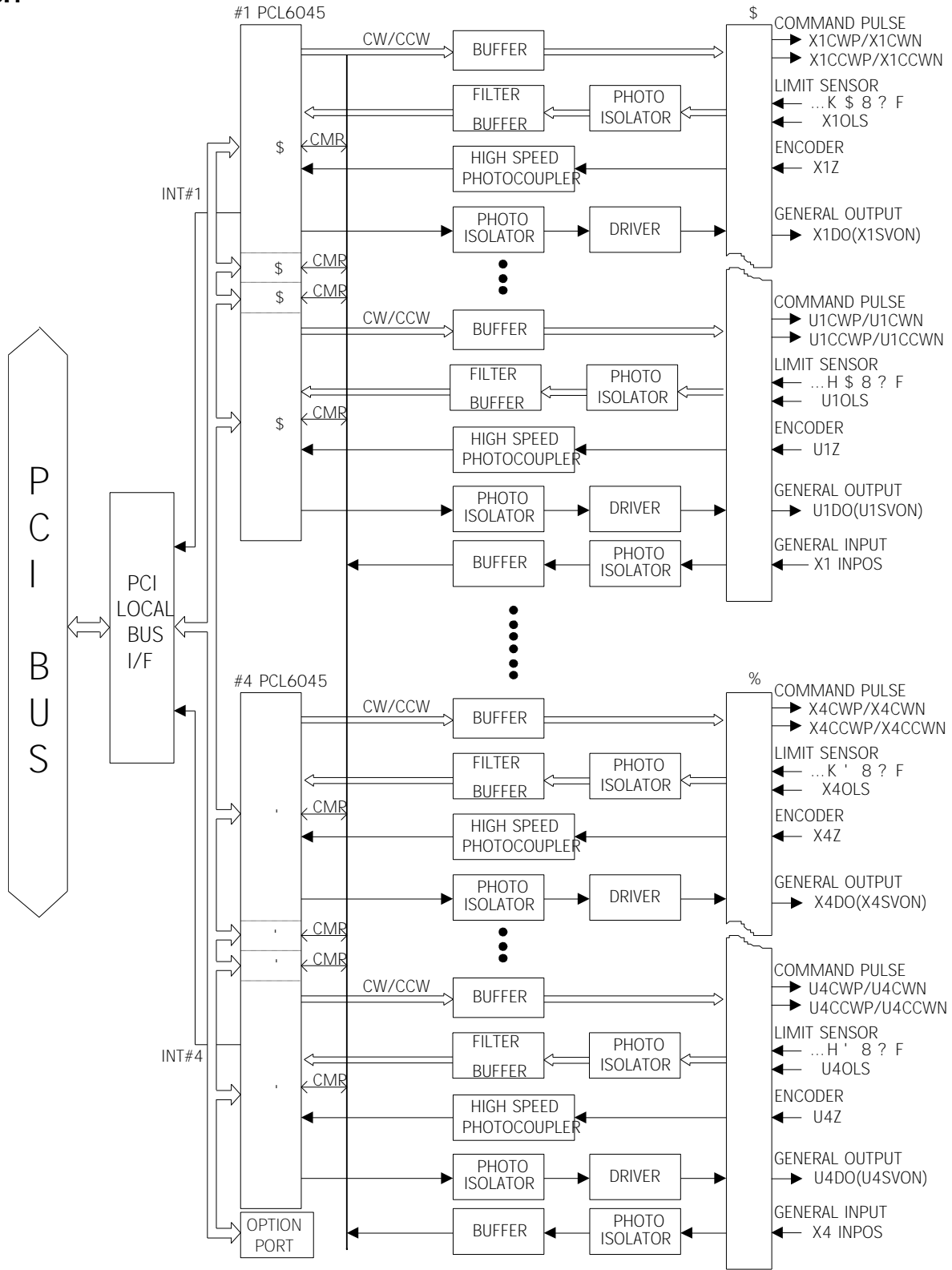
HPCI-CPD5016    EXP1    2

= 5 EXTPOW1    5V  
= C EXTPOW1    12V

= 5 EXTPOW2    5V  
= C EXTPOW2    12V

3.

3.1



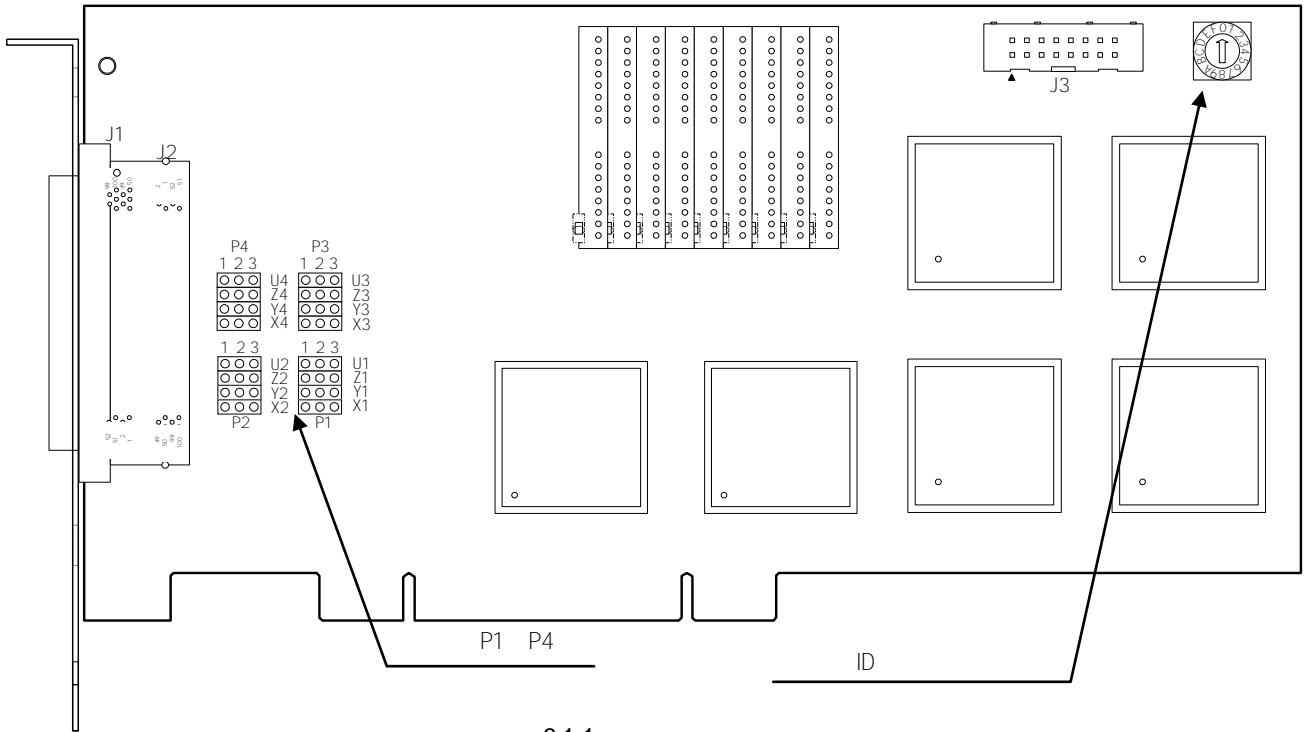
BDLS xPCS

3.1-1 CPD5016

### 3.2

CPD5016  
ID

ID      Z  
2



3.1-1

#### 3.2.1 ID

CPD5016  
ID

ID(0 Fh)  
( ID=0)

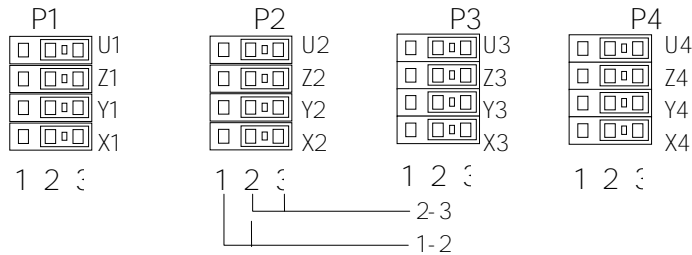


3.2-2 ID

#### 3.2.2 Z

Z

3.3-3



3.2-3 Z

CPD5016  
ID

ID      Z  
2

### 3.3

#### 3.3.1

|  |              |  |   |
|--|--------------|--|---|
|  |              |  | <p>(26C31 )</p> <p>2.4Kpps 200</p> <p>2.4Kpps~4.9Mpps duty50%</p> <p>4.9Mpps 50ns</p> |
|  | (PCL.RENV1 ) |  |   |
|  | (PCL.RENV1 ) |  |   |
|  |              |  |   |
|  |              |  |   |
|  |              |  |   |
|  |              |  |   |

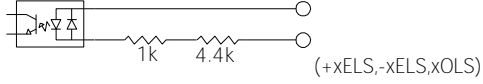
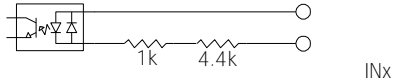
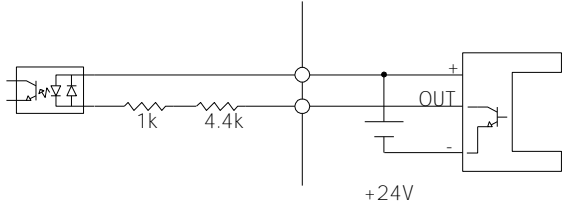
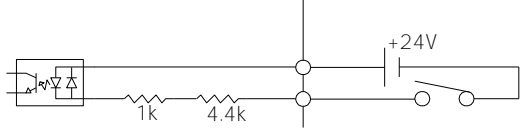
500Kpps(

3m) TTL

250Kpps(1 )

3.3-1

### 3.3.2

|   |                 |   |
|---|-----------------|---|
| 1 | xELS,xOLS       |  <p>EXTPOW1                      24V<br/>R                                      4.2</p> |
| 2 | IN1 IN2 IN3 IN4 |  <p>EXTPOW2                      24V<br/>R                                      4.2</p> |
| 3 | xELS,xOLS,      | A                      ON<br>B                      OFF   |
|   | xELS<br>xOLS,   | ELS                                      3.2.2<br>OLS    RENV1<br><    >  |
| 4 |                 |   |
|   |                 |   |

3.3-2



### 3.4

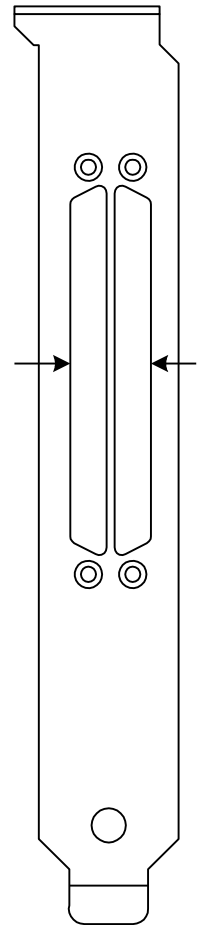
#### 3.4.1 J1

HDRA  
 HDRA-E100W1LFDT EC-SL+  
 HDRA-E100MA1( )  
 HDRA-E100LPWC

|    |                      |  |     |                      |
|----|----------------------|--|-----|----------------------|
| 1  | +5V                  |  | 51  | +5V                  |
| 2  | +5V                  |  | 52  | +5V                  |
| 3  | GND                  |  | 53  | GND                  |
| 4  | GND                  |  | 54  | GND                  |
| 5  | X1CWP (CW +/ )       |  | 55  | X2CWP (CW +/ )       |
| 6  | X1CWN (CW -/ )       |  | 56  | X2CWN (CW -/ )       |
| 7  | X1CCWP (CCW +/ )     |  | 57  | X2CCWP (CCW +/ )     |
| 8  | X1CCWN (CCW -/ )     |  | 58  | X2CCWN (CCW -/ )     |
| 9  | Y1CWP (CW +/ )       |  | 59  | Y2CWP (CW +/ )       |
| 10 | Y1CWN (CW -/ )       |  | 60  | Y2CWN (CW -/ )       |
| 11 | Y1CCWP (CCW +/ )     |  | 61  | Y2CCWP (CCW +/ )     |
| 12 | Y1CCWN (CCW -/ )     |  | 62  | Y2CCWN (CCW -/ )     |
| 13 | Z1CWP (CW +/ )       |  | 63  | Z2CWP (CW +/ )       |
| 14 | Z1CWN (CW -/ )       |  | 64  | Z2CWN (CW -/ )       |
| 15 | Z1CCWP (CCW +/ )     |  | 65  | Z2CCWP (CCW +/ )     |
| 16 | Z1CCWN (CCW -/ )     |  | 66  | Z2CCWN (CCW -/ )     |
| 17 | U1CWP (CW +/ )       |  | 67  | U2CWP (CW +/ )       |
| 18 | U1CWN (CW -/ )       |  | 68  | U2CWN (CW -/ )       |
| 19 | U1CCWP (CCW +/ )     |  | 69  | U2CCWP (CCW +/ )     |
| 20 | U1CCWN (CCW -/ )     |  | 70  | U2CCWN (CCW -/ )     |
| 21 | X1ZP ( Z +)          |  | 71  | X2ZP ( Z +)          |
| 22 | X1ZN ( Z -)          |  | 72  | X2ZN ( Z -)          |
| 23 | Y1ZP ( Z +)          |  | 73  | Y2ZP ( Z +)          |
| 24 | Y1ZN ( Z -)          |  | 74  | Y2ZN ( Z -)          |
| 25 | Z1ZP ( Z +)          |  | 75  | Z2ZP ( Z +)          |
| 26 | Z1ZN ( Z -)          |  | 76  | Z2ZN ( Z -)          |
| 27 | U1ZP ( Z +)          |  | 77  | U2ZP ( Z +)          |
| 28 | U1ZN ( Z -)          |  | 78  | U2ZN ( Z -)          |
| 29 | GND                  |  | 79  | GND                  |
| 30 | GND                  |  | 80  | GND                  |
| 31 | OUT1 ( X1SVON)       |  | 81  | OUT5 ( X2SVON)       |
| 32 | OUT2 ( Y1SVON)       |  | 82  | OUT6 ( Y2SVON)       |
| 33 | OUT3 ( Z1SVON)       |  | 83  | OUT7 ( Z2SVON)       |
| 34 | OUT4 ( U1SVON)       |  | 84  | OUT8 ( U2SVON)       |
| 35 | IN1 ( <sup>1</sup> ) |  | 85  | IN2 ( <sup>2</sup> ) |
| 36 | EXTPOW2 (+24V )      |  | 86  | EXTGND2 (+24V )      |
| 37 | +X1ELS (+ )          |  | 87  | +X2ELS (+ )          |
| 38 | -X1ELS (- )          |  | 88  | -X2ELS (- )          |
| 39 | X1OLS ( )            |  | 89  | X2OLS ( )            |
| 40 | +Y1ELS (+ )          |  | 90  | +Y2ELS (+ )          |
| 41 | -Y1ELS (- )          |  | 91  | -Y2ELS (- )          |
| 42 | Y1OLS ( )            |  | 92  | Y2OLS ( )            |
| 43 | +Z1ELS (+ )          |  | 93  | +Z2ELS (+ )          |
| 44 | -Z1ELS (- )          |  | 94  | -Z2ELS (- )          |
| 45 | Z1OLS ( )            |  | 95  | Z2OLS ( )            |
| 46 | +U1ELS (+ )          |  | 96  | +U2ELS (+ )          |
| 47 | -U1ELS (- )          |  | 97  | -U2ELS (- )          |
| 48 | U1OLS ( )            |  | 98  | U2OLS ( )            |
| 49 | EXTPOW1 (+24V )      |  | 99  | EXTPOW1 (+24V )      |
| 50 | EXTPOW1 (+24V )      |  | 100 | EXTPOW1 (+24V )      |

3.4-1 J1

X1-U2



### 3.4.2 2

|    |                      |  |     |                      |
|----|----------------------|--|-----|----------------------|
| 1  | +5V                  |  | 51  | +5V                  |
| 2  | +5V                  |  | 52  | +5V                  |
| 3  | GND                  |  | 53  | GND                  |
| 4  | GND                  |  | 54  | GND                  |
| 5  | X3CWP (CW +/ )       |  | 55  | X4CWP (CW +/ )       |
| 6  | X3CWN (CW -/ )       |  | 56  | X4CWN (CW -/ )       |
| 7  | X3CCWP (CCW +/ )     |  | 57  | X4CCWP (CCW +/ )     |
| 8  | X3CCWN (CCW -/ )     |  | 58  | X4CCWN (CCW -/ )     |
| 9  | Y3CWP (CW +/ )       |  | 59  | Y4CWP (CW +/ )       |
| 10 | Y3CWN (CW -/ )       |  | 60  | Y4CWN (CW -/ )       |
| 11 | Y3CCWP (CCW +/ )     |  | 61  | Y4CCWP (CCW +/ )     |
| 12 | Y3CCWN (CCW -/ )     |  | 62  | Y4CCWN (CCW -/ )     |
| 13 | Z3CWP (CW +/ )       |  | 63  | Z4CWP (CW +/ )       |
| 14 | Z3CWN (CW -/ )       |  | 64  | Z4CWN (CW -/ )       |
| 15 | Z3CCWP (CCW +/ )     |  | 65  | Z4CCWP (CCW +/ )     |
| 16 | Z3CCWN (CCW -/ )     |  | 66  | Z4CCWN (CCW -/ )     |
| 17 | U3CWP (CW +/ )       |  | 67  | U4CWP (CW +/ )       |
| 18 | U3CWN (CW -/ )       |  | 68  | U4CWN (CW -/ )       |
| 19 | U3CCWP (CCW +/ )     |  | 69  | U4CCWP (CCW +/ )     |
| 20 | U3CCWN (CCW -/ )     |  | 70  | U4CCWN (CCW -/ )     |
| 21 | X3ZP ( Z +)          |  | 71  | X4ZP ( Z +)          |
| 22 | X3ZN ( Z -)          |  | 72  | X4ZN ( Z -)          |
| 23 | Y3ZP ( Z +)          |  | 73  | Y4ZP ( Z +)          |
| 24 | Y3ZN ( Z -)          |  | 74  | Y4ZN ( Z -)          |
| 25 | Z3ZP ( Z +)          |  | 75  | Z4ZP ( Z +)          |
| 26 | Z3ZN ( Z -)          |  | 76  | Z4ZN ( Z -)          |
| 27 | U3ZP ( Z +)          |  | 77  | U4ZP ( Z +)          |
| 28 | U3ZN ( Z -)          |  | 78  | U4ZN ( Z -)          |
| 29 | GND                  |  | 79  | GND                  |
| 30 | GND                  |  | 80  | GND                  |
| 31 | OUT9 ( X3SVON)       |  | 81  | OUT13 ( X4SVON)      |
| 32 | OUT10 ( Y3SVON)      |  | 82  | OUT14 ( Y4SVON)      |
| 33 | OUT11 ( Z3SVON)      |  | 83  | OUT15 ( Z4SVON)      |
| 34 | OUT12 ( U3SVON)      |  | 84  | OUT16 ( U4SVON)      |
| 35 | IN3 ( <sup>3</sup> ) |  | 85  | IN4 ( <sup>4</sup> ) |
| 36 | EXTPOW2 (+24V )      |  | 86  | EXTGND2 (+24V )      |
| 37 | +X3ELS (+ )          |  | 87  | +X4ELS (+ )          |
| 38 | -X3ELS (- )          |  | 88  | -X4ELS (- )          |
| 39 | X3OLS ( )            |  | 89  | X4OLS ( )            |
| 40 | +Y3ELS (+ )          |  | 90  | +Y4ELS (+ )          |
| 41 | -Y3ELS (- )          |  | 91  | -Y4ELS (- )          |
| 42 | Y3OLS ( )            |  | 92  | Y4OLS ( )            |
| 43 | +Z3ELS (+ )          |  | 93  | +Z4ELS (+ )          |
| 44 | -Z3ELS (- )          |  | 94  | -Z4ELS (- )          |
| 45 | Z3OLS ( )            |  | 95  | Z4OLS ( )            |
| 46 | +U3ELS (+ )          |  | 96  | +U4ELS (+ )          |
| 47 | -U3ELS (- )          |  | 97  | -U4ELS (- )          |
| 48 | U3OLS ( )            |  | 98  | U4OLS ( )            |
| 49 | EXTPOW1 (+24V )      |  | 99  | EXTPOW1 (+24V )      |
| 50 | EXTPOW1 (+24V )      |  | 100 | EXTPOW1 (+24V )      |

3.4-2 J2

X3-U4

### 3.4.3 3

|    |     |    |     |
|----|-----|----|-----|
| 1  | GND | 2  | GND |
| 3  | STA | 4  | STP |
| 5  | GND | 6  | GND |
| 7  | NC  | 8  | NC  |
| 9  | NC  | 10 | NC  |
| 11 | NC  | 12 | NC  |
| 13 | NC  | 14 | NC  |
| 15 | NC  | 16 | NC  |

NC

3.4-2 J3 STA,ATP

### 3.5 HPCI-CPD5016

|  |  |   |  |
|--|--|---|--|
|  |  | 16<br>(1)16<br>(2)<br>(3)   | PCL6045( )   |
|  |  | -134,217,728+134,217,727[ ]   |  |
|  |  | 0.1 pps 6.5 Mpps( 0.1 100)  | 16bit(65535)<br>1 :1 65.535kpps<br>10 :10 655.35kpps |
|  |  | ι<br>ι  |  |
|  |  | (1)<br>(2)  |  |
|  |  | (1)<br>S S<br>( )<br>(2) OFF  | S 2.7ms 871s<br>5.4ms 1742s                          |
|  |  | Z ELS 13  |  |
|  |  | ( ) 4   |  |
|  |  | 1,2 ±<br>3,4,5  |  |
|  |  | / / 1   |  |
|  |  |   |  |
|  |  |   |  |
|  |  | ±ELS OLS /  |  |
|  |  | (1) 2 DI 3<br>1.INPOS 2.EMG 3.<br>( INPOS X1 X2 X3 X4 INPOS 1<br>EMG )<br>( 24V 12V 10mA/ ) |  |
|  |  | (2) 8 DO SVON( OFF)<br>( 24V 12V 80mA/ )  |  |
|  |  |   | +24V +12V +5V  |
|  |  | 5V 500mA MAX 3V A MAX   |  |
|  |  | 0 50  |  |
|  |  | 210mm 107mm   |  |

3.5-1 HPCI-CPD5016

## 4.

### 4.1 PCI

| CPD5016         |    | PCI                  |    |                 |   |         |   |         |  |     |
|-----------------|----|----------------------|----|-----------------|---|---------|---|---------|--|-----|
| 31              | 24 | 23                   | 16 | 15              | 8 | 7       | 0 |         |  |     |
| <b>ID 1014h</b> |    |                      |    | <b>ID 14a9h</b> |   |         |   |         |  | 00h |
|                 |    |                      |    |                 |   |         |   |         |  | 04h |
| (06h)           |    | (80h)                |    |                 |   | ID(02h) |   | 08h     |  |     |
|                 |    |                      |    |                 |   |         |   | 0ch     |  |     |
|                 |    | BAR0:00000000 ( )    |    |                 |   |         |   | 10h     |  |     |
|                 |    | BAR1:xxxxxxxh ( )    |    |                 |   |         |   | 14h     |  |     |
|                 |    | <b>BAR2: CPD5016</b> |    |                 |   |         |   | 18h     |  |     |
|                 |    | BAR3: 00000000 ( )   |    |                 |   |         |   | 1ch     |  |     |
|                 |    | BAR4: 00000000 ( )   |    |                 |   |         |   | 20h     |  |     |
|                 |    | BAR5: 00000000 ( )   |    |                 |   |         |   | 24h     |  |     |
|                 |    | CIS                  |    |                 |   |         |   | 28h     |  |     |
| ID 1014h        |    |                      |    | ID 14a9h        |   |         |   |         |  | 2ch |
|                 |    |                      |    |                 |   | IRQ No. |   | 30h-3bh |  |     |
|                 |    |                      |    |                 |   |         |   | 3c      |  |     |
|                 |    |                      |    |                 |   |         |   | 40h-fch |  |     |

4.1-1 PCI

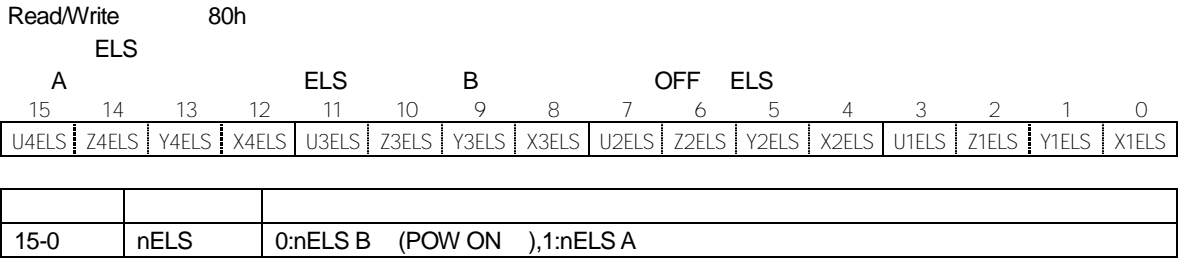
4.2

|                     | I/O     | BAR2 | 2       | ( ) |                 |
|---------------------|---------|------|---------|-----|-----------------|
|                     | (HEX)   |      |         |     | (OUT)           |
| PCL<br>X1<br>( 1 )  | BAR2+00 | MSTS |         |     | CMD             |
|                     | +02     | SSTS |         |     | OTP             |
|                     | +04     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +06     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Y1<br>( 2 )  | +08     | MSTS |         |     | CMD             |
|                     | +0a     | SSTS |         |     | OTP             |
|                     | +0c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +0e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Z1<br>( 3 )  | +10     | MSTS |         |     | CMD             |
|                     | +12     | SSTS |         |     | OTP             |
|                     | +14     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +16     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>U1<br>( 4 )  | +18     | MSTS |         |     | CMD             |
|                     | +1a     | SSTS |         |     | OTP             |
|                     | +1c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +1e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>X2<br>( 5 )  | +20     | MSTS |         |     | CMD             |
|                     | +22     | SSTS |         |     | OTP             |
|                     | +24     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +26     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Y2<br>( 6 )  | +28     | MSTS |         |     | CMD             |
|                     | +2a     | SSTS |         |     | OTP             |
|                     | +2c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +2e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Z2<br>( 7 )  | +30     | MSTS |         |     | CMD             |
|                     | +32     | SSTS |         |     | OTP             |
|                     | +34     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +36     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>U2<br>( 8 )  | +38     | MSTS |         |     | CMD             |
|                     | +3a     | SSTS |         |     | OTP             |
|                     | +3c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +3e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>X3<br>( 9 )  | +40     | MSTS |         |     | CMD             |
|                     | +42     | SSTS |         |     | OTP             |
|                     | +44     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +46     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Y3<br>( 10 ) | +48     | MSTS |         |     | CMD             |
|                     | +4a     | SSTS |         |     | OTP             |
|                     | +4c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +4e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Z3<br>( 11 ) | +50     | MSTS |         |     | CMD             |
|                     | +52     | SSTS |         |     | OTP             |
|                     | +54     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +56     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>U3<br>( 12 ) | +58     | MSTS |         |     | CMD             |
|                     | +5a     | SSTS |         |     | OTP             |
|                     | +5c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +5e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>X4<br>( 13 ) | +60     | MSTS |         |     | CMD             |
|                     | +62     | SSTS |         |     | OTP             |
|                     | +64     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +66     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Y4<br>( 14 ) | +68     | MSTS |         |     | CMD             |
|                     | +6a     | SSTS |         |     | OTP             |
|                     | +6c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +6e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>Z4<br>( 15 ) | +70     | MSTS |         |     | CMD             |
|                     | +72     | SSTS |         |     | OTP             |
|                     | +74     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +76     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
| PCL<br>U4<br>( 16 ) | +78     | MSTS |         |     | CMD             |
|                     | +7a     | SSTS |         |     | OTP             |
|                     | +3c     | BUF0 | (15-0)  |     | BUF0 OUT(15-0)  |
|                     | +7e     | BUF1 | (31-16) |     | BUF1 OUT(31-16) |
|                     | +80     | +FF  |         | 4.3 | 4.3             |

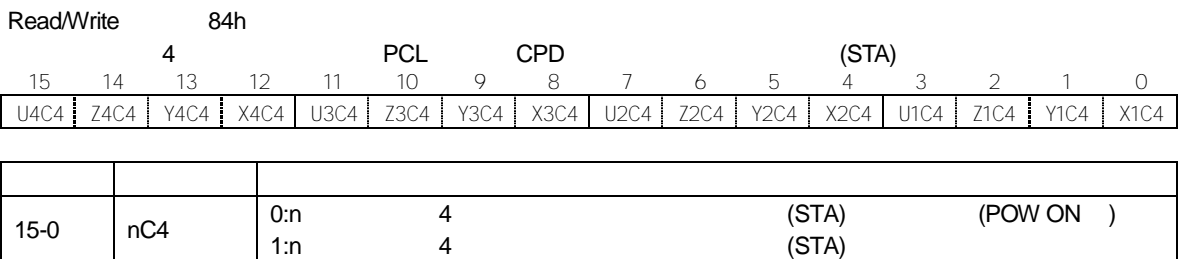
4.2-1 CPD5016

**4.3** ( )  
 1 ( n??? n \* )

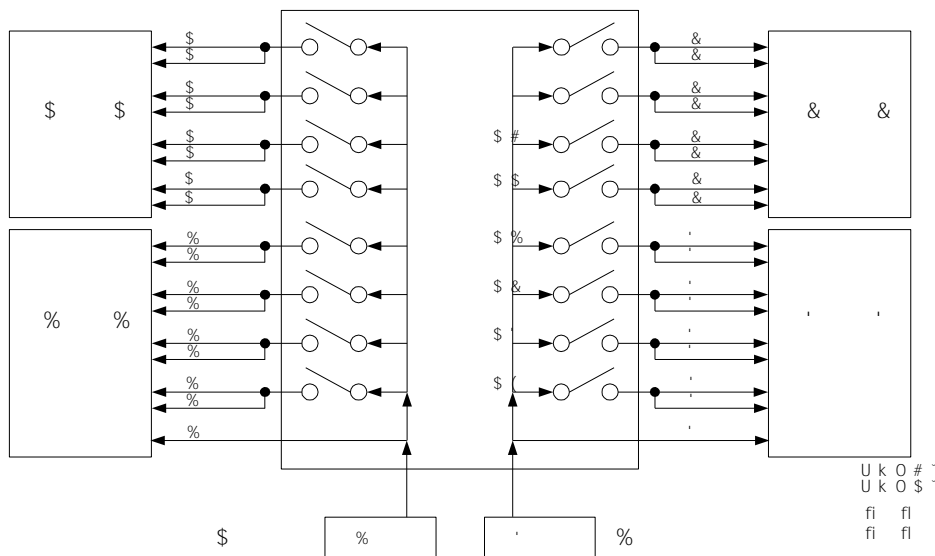
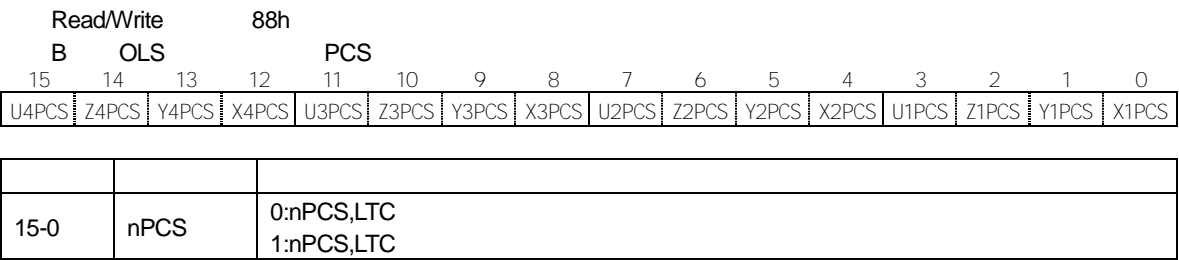
**4.3.1 ELS (ELPOL)**



**4.3.2 4 (STA) (C4STA)**



**4.3.3 UxOLS/PCS (BOL2PC)**



4.3-1 BOLS (BOLS J1 98) PCS

### 4.3.4

### (INP\_SEL)

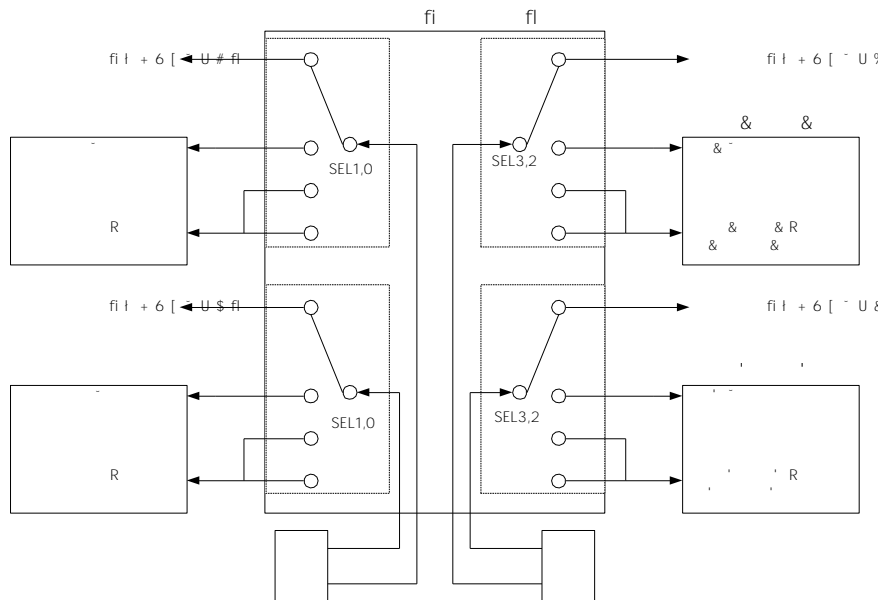
Read/Write 8ah

|   |         |     |    |     |    |   |
|---|---------|-----|----|-----|----|---|
| 2 | (b1,b0) | IN1 | 35 | IN2 | 85 | 3 |
| 2 | (b3,b2) | IN3 | 35 | IN4 | 85 | 3 |

|    |    |    |    |    |    |   |   |   |   |   |   |      |      |      |      |
|----|----|----|----|----|----|---|---|---|---|---|---|------|------|------|------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3    | 2    | 1    | 0    |
| *  | *  | *  | *  | *  | *  | * | * | * | * | * | * | SEL4 | SEL3 | SEL2 | SEL1 |

|     |              |         |               |               |
|-----|--------------|---------|---------------|---------------|
| 3-0 | SEL1<br>SEL2 | 00      | IN2:X2 INPOS  | IN1:X1 INPOS, |
|     |              | 01      | IN2: 1        | IN1: 0        |
|     |              | 10 (11) | IN2:U2-X2 EMG | IN1:X1-U1 EMG |
|     | SEL3<br>SEL4 | 00      | IN4:X4 INPOS  | IN3:X3 INPOS  |
|     |              | 01      | IN4: 3        | IN3: 2        |
|     |              | 10 (11) | IN4:U4-X4 EMG | IN3:X3-U3 EMG |

4.3-2



4.3-2

### 4.3.5

### (INPORT)

Read/Write 8ch

(INPORT)

|    |    |    |    |    |    |   |   |   |   |   |   |     |     |     |     |
|----|----|----|----|----|----|---|---|---|---|---|---|-----|-----|-----|-----|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3   | 2   | 1   | 0   |
| *  | *  | *  | *  | *  | *  | * | * | * | * | * | * | IN4 | IN3 | IN2 | IN1 |

|   |     |           |          |
|---|-----|-----------|----------|
| 0 | IN1 | 0 IN1 OFF | 1 IN1 ON |
| 1 | IN2 | 0 IN2 OFF | 1 IN2 ON |
| 2 | IN3 | 0 IN3 OFF | 1 IN3 ON |
| 3 | IN4 | 0 IN4 OFF | 1 IN4 ON |

### 4.3.6 (BINTM)

Read/Write 90h (Windows )  
PCI Bus

|    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |       |
|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|-------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0     |
| *  | *  | *  | *  | *  | *  | * | * | * | * | * | * | * | * | * | BINTM |

|   |       |   |               |   |     |
|---|-------|---|---------------|---|-----|
| 0 | BINTM | 0 | ( ) (POW ON ) | 1 | ( ) |
|---|-------|---|---------------|---|-----|

### 4.3.7 (BINTS)

Read 92h  
PCL (Windows )

|    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |       |
|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|-------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0     |
| *  | *  | *  | *  | *  | *  | * | * | * | * | * | * | * | * | * | BINTS |

|   |       |   |   |        |
|---|-------|---|---|--------|
| 0 | BINTS | 0 | 1 | POW ON |
|---|-------|---|---|--------|

### 4.3.8 ID(BID)

Read 9ch  
ID

|    |    |    |    |    |    |   |   |   |   |   |   |      |      |      |      |
|----|----|----|----|----|----|---|---|---|---|---|---|------|------|------|------|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3    | 2    | 1    | 0    |
| *  | *  | *  | *  | *  | *  | * | * | * | * | * | * | BID3 | BID2 | BID1 | BID0 |

|     |        |    |       |
|-----|--------|----|-------|
| 3-0 | BID3-0 | ID | ( =0) |
|-----|--------|----|-------|

### 4.3.9 (BCODE)

Read c8h cah

|                   |                         |              |           |     |
|-------------------|-------------------------|--------------|-----------|-----|
| c8h:HPCI-CPD5016  | b7-0=50h, HPCI-CPD578N( | HPCI-CPD578) | b7-0=57h, | 52h |
| cah: HPCI-CPD5016 | b7-0=16h, HPCI-CPD578N( | HPCI-CPD578) | b7-0=8ah, | 54h |

### 4.3.10 (OPT\_RST)

Write a8h  
POW ON

**4.4 4 /16**

CPD5016

CPD  
4IN/16OUT

A/B

**4.4.1 4**

INPORT  
3

INPSEL 4

- 4
- (1) 4
- (2) 4
- (3) 4

4.3 ( )

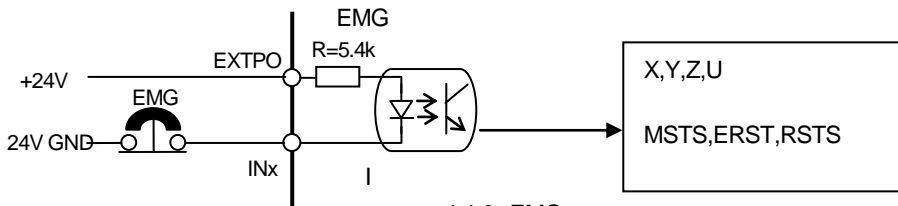
2

- (1) IN1 X1 INPOS X1
- (2) IN2 X2 INPOS X2
- (3) IN3 X3 INPOS X3
- (4) IN4 X4 INPOS X4

2

(EMG )

- IN1 EMG X1-U1
- IN2 EMG X2-U2
- IN3 EMG X3-U3
- IN4 EMG X4-U4
- EMG B



4.4-3 EMG

**4.4.2 16**

(SVON)

ON/OFF

(SVRST)

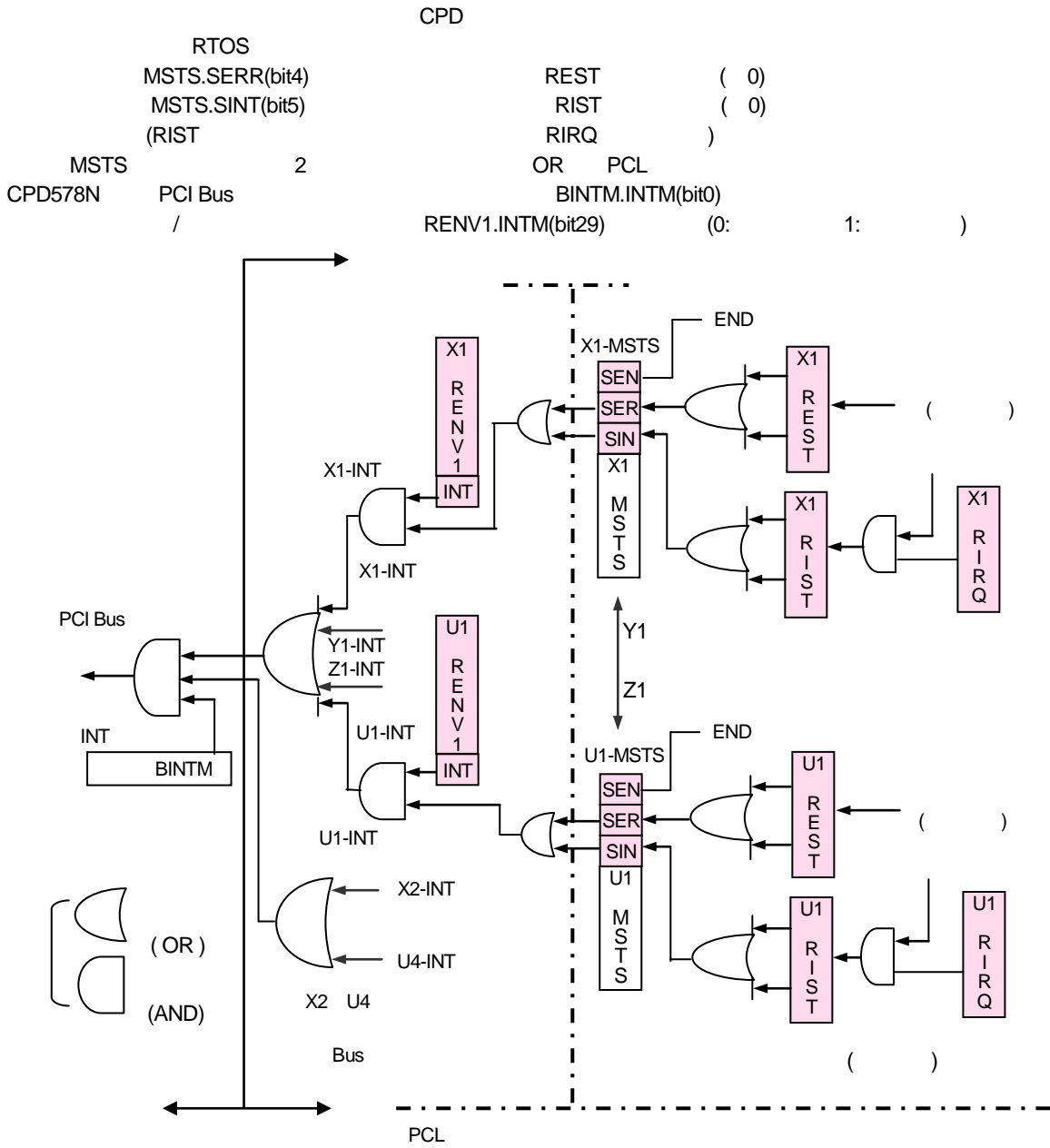
CPD5016

(1)

- CPD5016 OUT1 OUT4 X1 U1SVON OUT5 OUT8 X2 U2SVON
- OUT9 OUT12 X3 U3SVON OUT13 OUT16 X4 U4SVON

3.3.4

4.5



4.5-1 CPD5016

## 5.

### 5.1

Windows

| ID  | VC | VB | VC#     | Delphi |
|-----|----|----|---------|--------|
| exe |    |    | CPD5016 | CPD    |

### 5.2

#### OS

OS

Windows 7, Windows Vista, Windows XP, Windows 2000, Windows NT4.0, Windows 98 Second Edition

OS

### 5.3

(1)

| Windows             | OS               |              |
|---------------------|------------------|--------------|
| Windows 7(64 )      | (Win7(x64) )     | hc530x64.sys |
| Windows Vista (64 ) | (WinVista(x64) ) | hc530x64.sys |
| Windows 7(32 )      | (Win7 )          | hc530wdm.sys |
| Windows Vista (32 ) | (WinVista )      | hc530wdm.sys |
| Windows XP          | (WinXP )         | hc530wxp.sys |
| Windows 2000        | (Win2K )         | hc530w2k.sys |
| Windows NT4.0       | (WinNT )         | hicpd530.sys |
| Windows 98SE        | (Win98 )         | hicpd530.vxd |

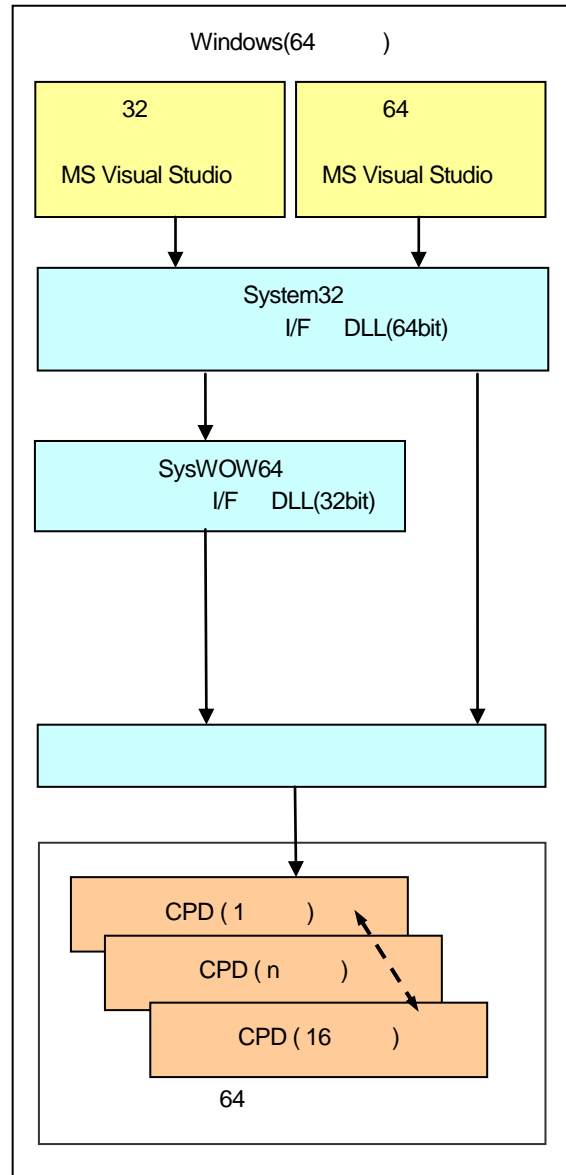
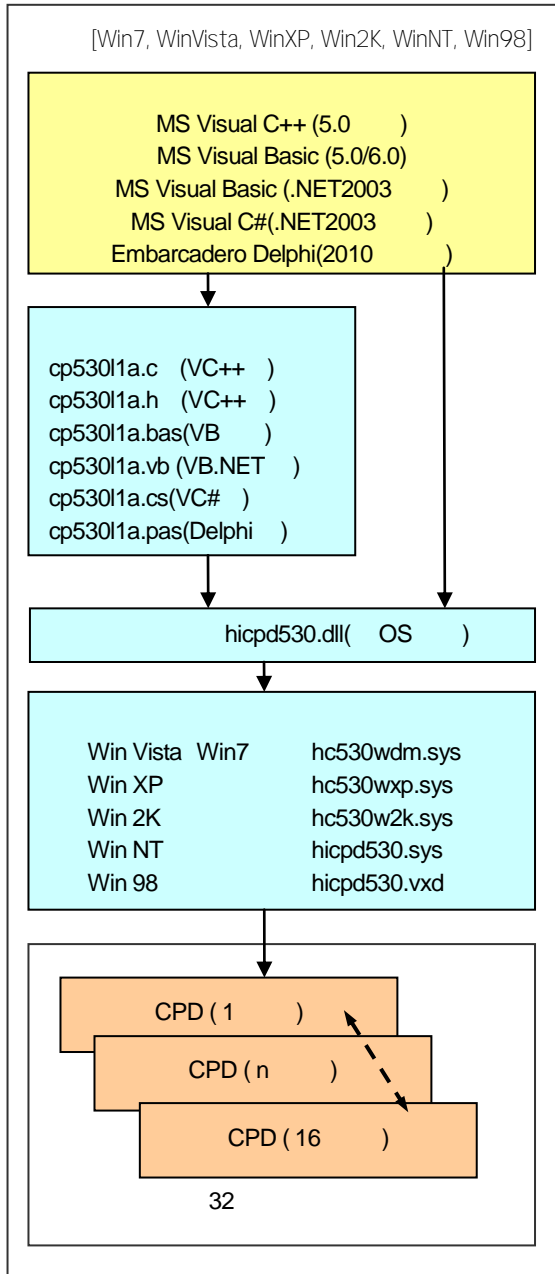
(2)

/

| Windows      |   | OS |   |
|--------------|---|----|---|
| hicpd530.dll | ( | OS | ) |

(3)

| Windows                |                                   |
|------------------------|-----------------------------------|
| cp530l1a.c(cp530l1a.h) | Microsoft Visual C++ (5.0 )       |
| cp530l1a.bas           | Microsoft Visual Basic (5.0/6.0)  |
| cp530l1a.vb            | Microsoft Visual Basic(.NET2003 ) |
| cp530l1a.cs            | Microsoft Visual .C#              |
| cp530l1a.pas           | Embarcadero Delphi 2010           |



5.3-1

## 5.4

### 5.4.1 Windows

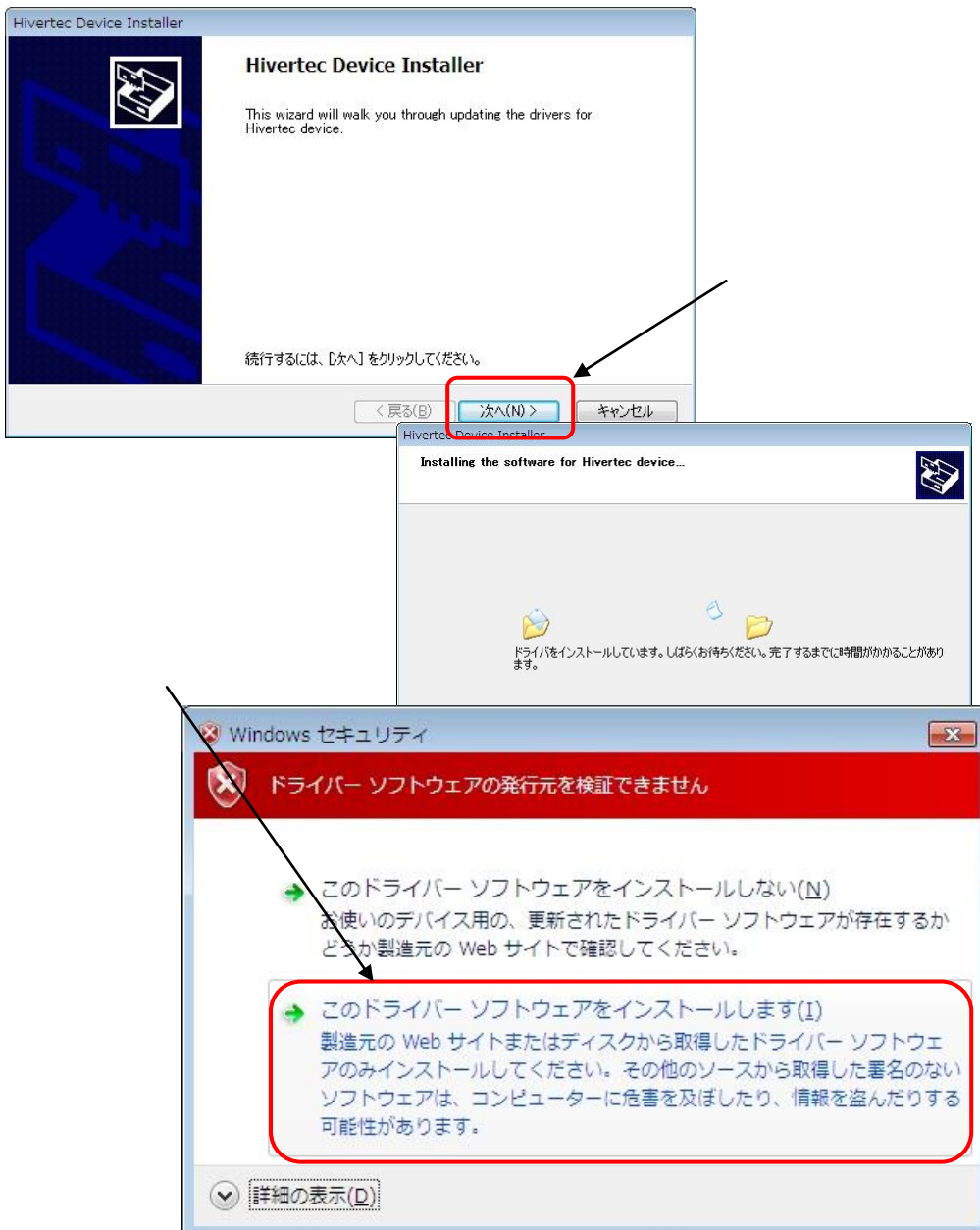
(1) Windows7(32 ) WindowsVista(32 )

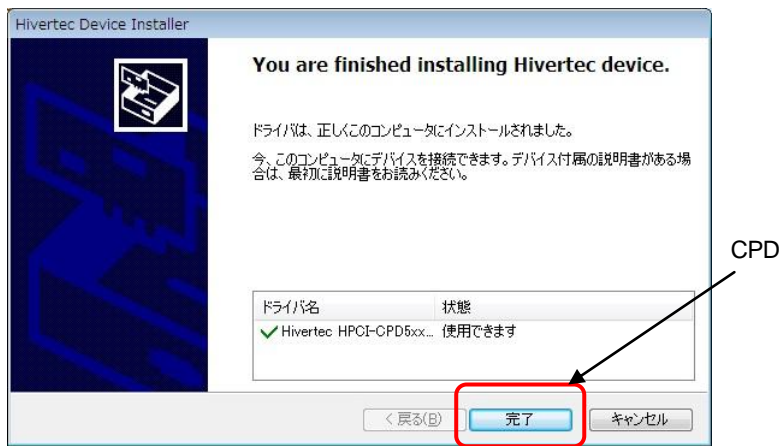
CPD PCI ON Windows

CD :¥win7\_x86¥dpinst.exe

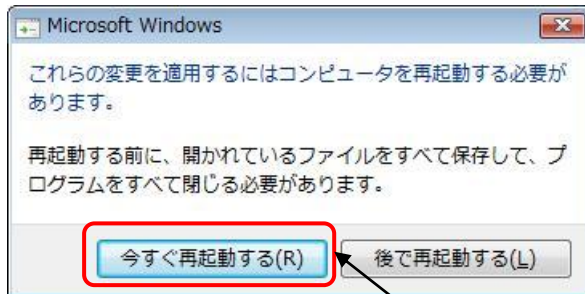
"dpinst.exe"

OFF CPD PCI  
ON Windows





Windows



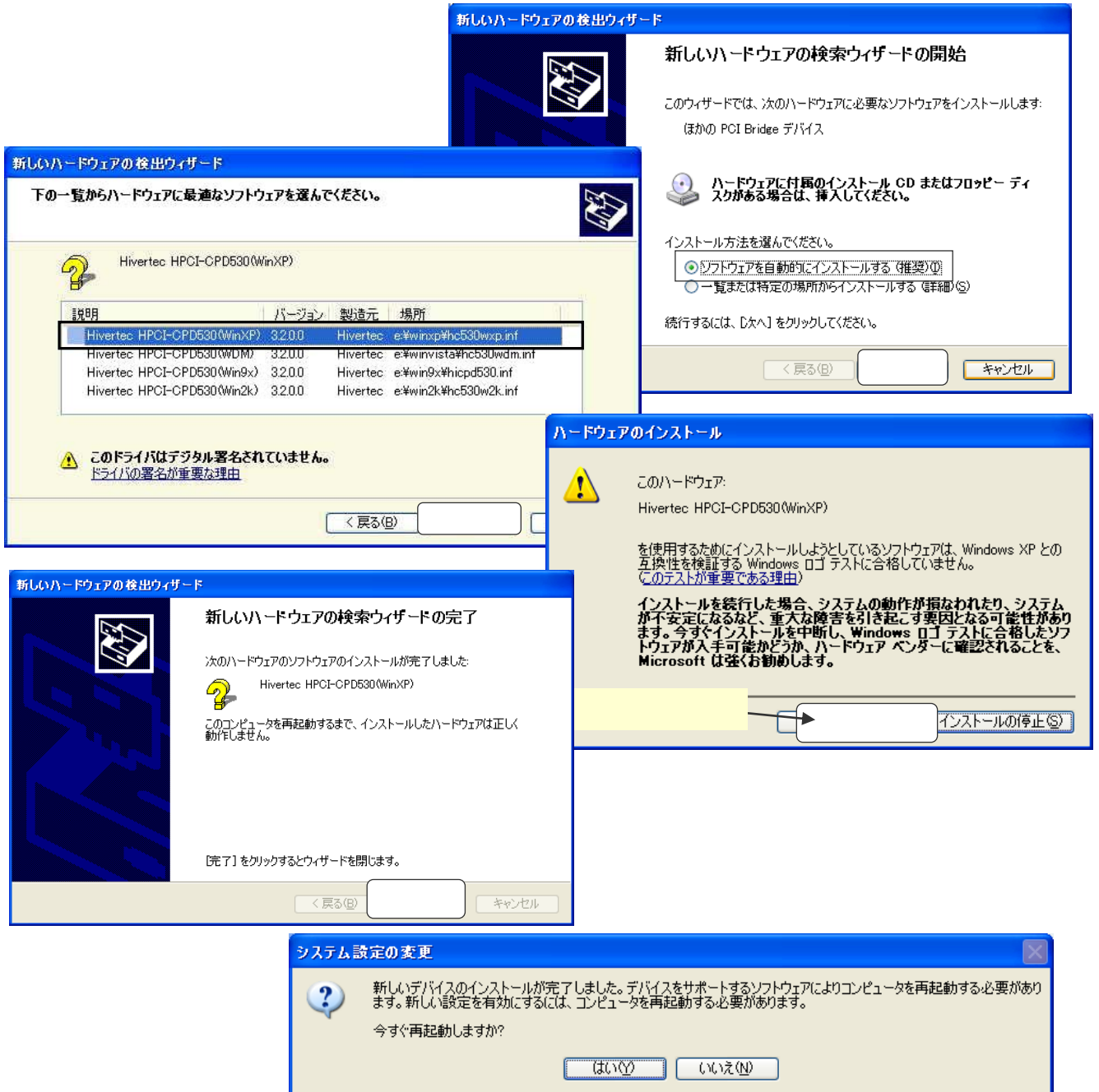
5.4-1 Win7,WinVista

(2) Windows7(64 ) WindowsVista(64 )  
 CPD PCI ON Windows  
 CD :¥win7\_x64¥dpinst.exe  
 "dpinst.exe"  
 OFF CPD PCI  
 ON Windows

(3)WindowsXP

OFF CPD PCI  
 ON Windows  
 WinXP CPD

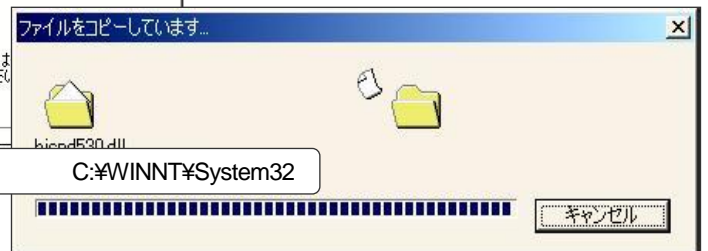
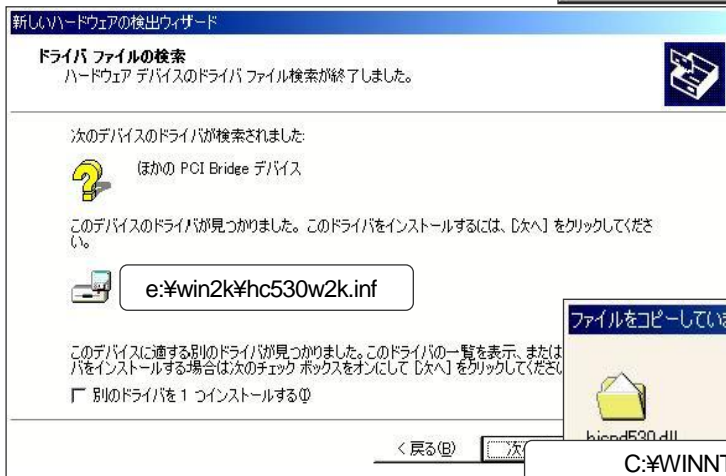
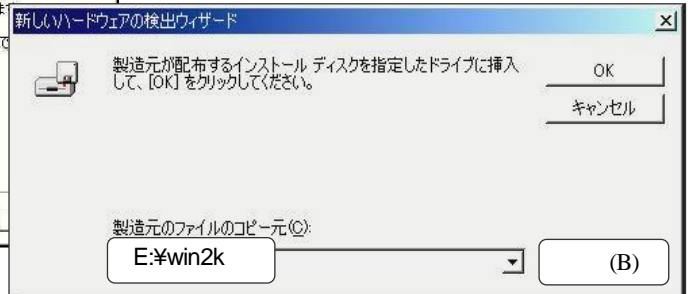
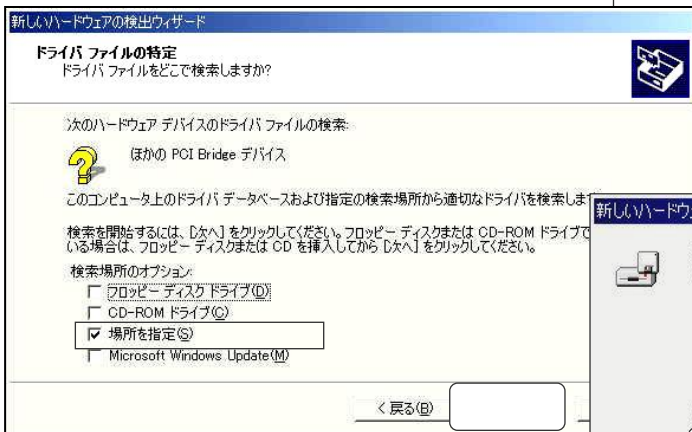
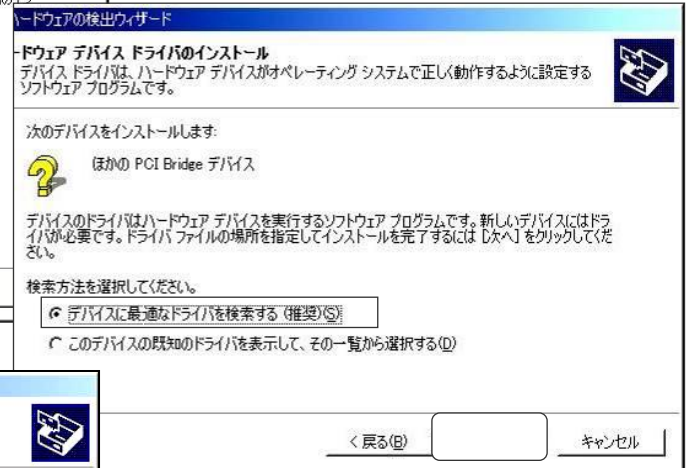
Hivertec HPCI-CPD530(WinXP)  
 Windows WinXP

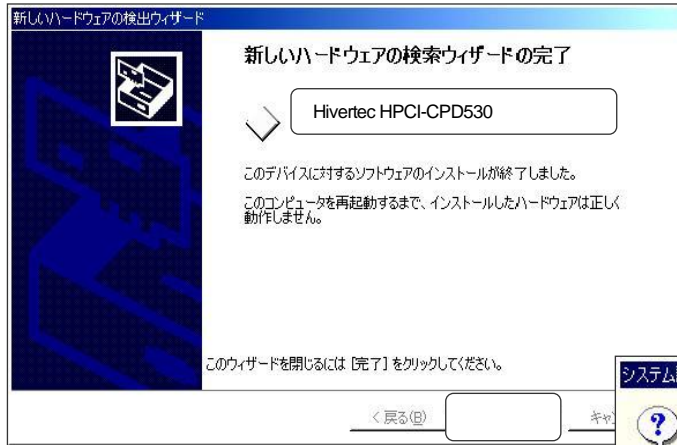


5.4-2 WinXP

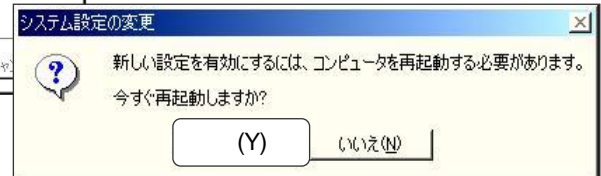
(4)Windows2000

OFF CPD PCI  
 ON Windows  
 Win2K CPD  
 CD :¥WIN2K





5.4-3 Win2K



(5) Windows 4.0

CD

CD :%WinNT%c530inst.inf

CD :%WinNT%c530inst.bat



5.4-4 WinNT

WinNT

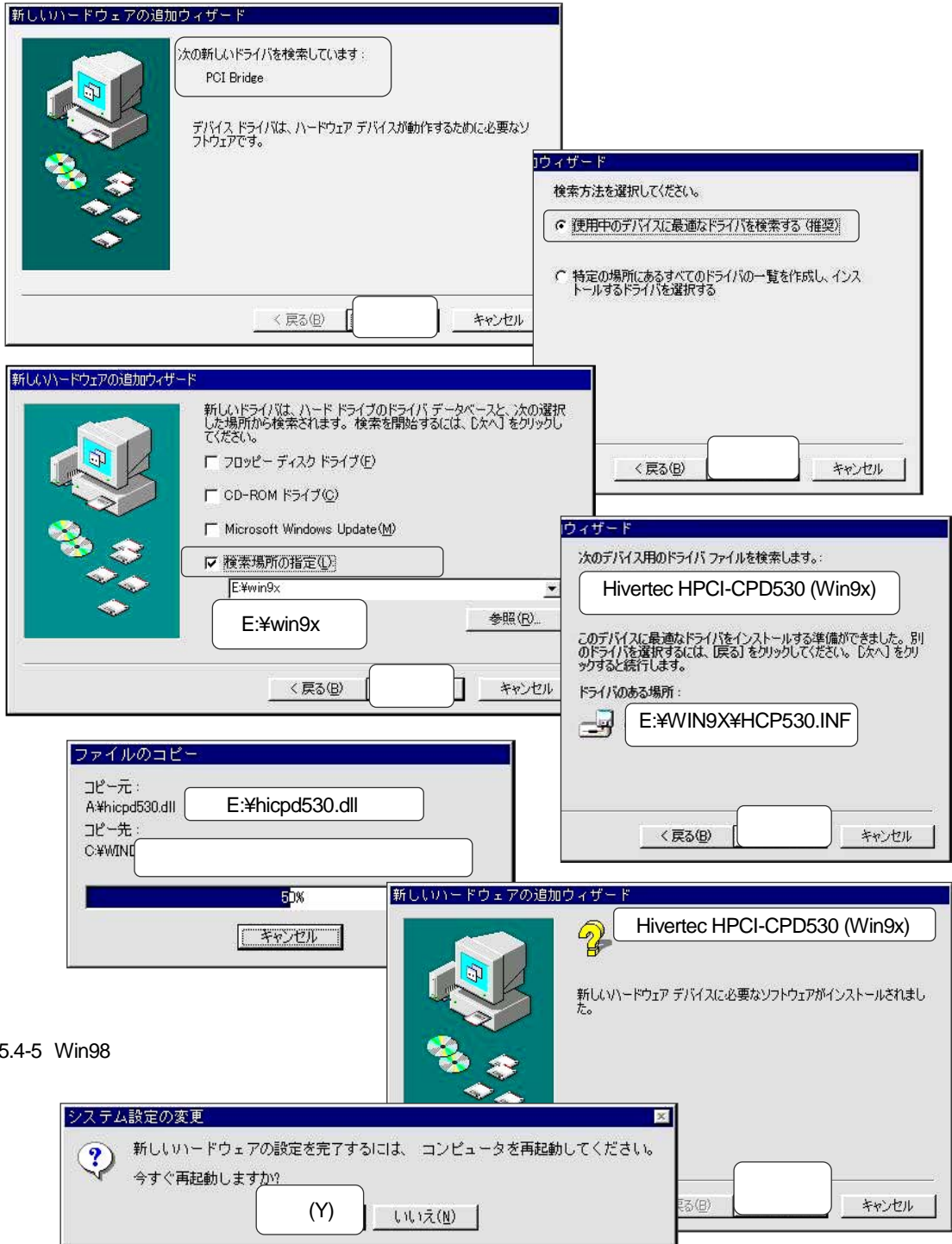
CPD

Hivertec HPCI-CPD530)

Hivertec HPCI-CPD530

(6)Windows98

Win98      OFF      CPD      PCI  
             ON      Windows  
                     CPD  
 CD      :¥Win9x      CD



5.4-5 Win98

(7) WindowsXP 2000 NT4.0 98SE

CD :%cp530uin.exe  
 CD :%cp530uin.exe



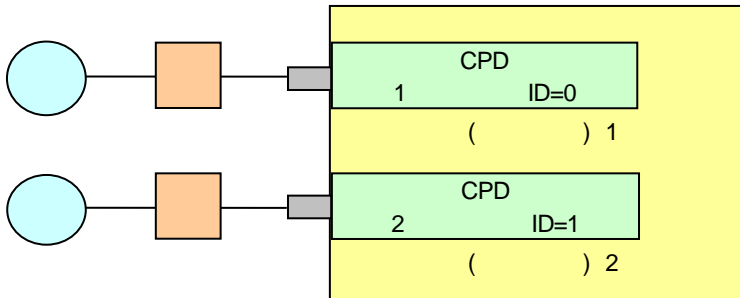
5.4-6

(8) Windows7 Windows Vista

Windows  
 Windows Hivertec HPCI-CPD5xx

5.5

CPD 1



5.5-1

(1) ID  
 PCI

CPD ID

(2) ID  
 ID No.0-15  
 CPD(CPD5016 CPD508 CPD578 CPD578N CPD574N CPD534 CPD532 ) 16

5.6

CPD CPD ,  
 , I/O IRQ ,

## 5.6.1

```

                                HPCDEVICEINFO                                16
VC
typedef struct _HPCDEVICEINFO {
    DWORD nBusNumber; /* */
    DWORD nDeviceNumber; /* */
    DWORD dwIoPortAddress; /* I/O */
    DWORD dwIrqNo; /* IRQ */
    DWORD dwNumber; /* */
    DWORD dwBoardID; /* ID(0 15) */
} HPCDEVICEINFO, *PHPCDEVICEINFO
. Windows98 INVALID_HPC_NUMBER(ffffffffh)
```

## 5.6.2

(1)

```

                                CPD
[ ]
                                CPD
CE cp530_GetDeviceCount()
CE cp530_GetDeviceInfo()
                                CPD
                                CPD
CE cp530_OpenDevice()
                                CPD
                                CPD
CE cp530_wPortB()
[ ]
CE cp530_CloseDevice()
```

(2)

```
CPD
[ ]
CPD
CE hcp530_GetDevInfo()
2
CPD
CPD
, CPD
,
2
CE hcp530_DevOpen()

[ ]
( )
CE hcp530_DevClose()
```

### 5.6.3

```
> ±ELS
>
> OLS Z
> INPOS

> " " " " ?
> " " " " ?
```

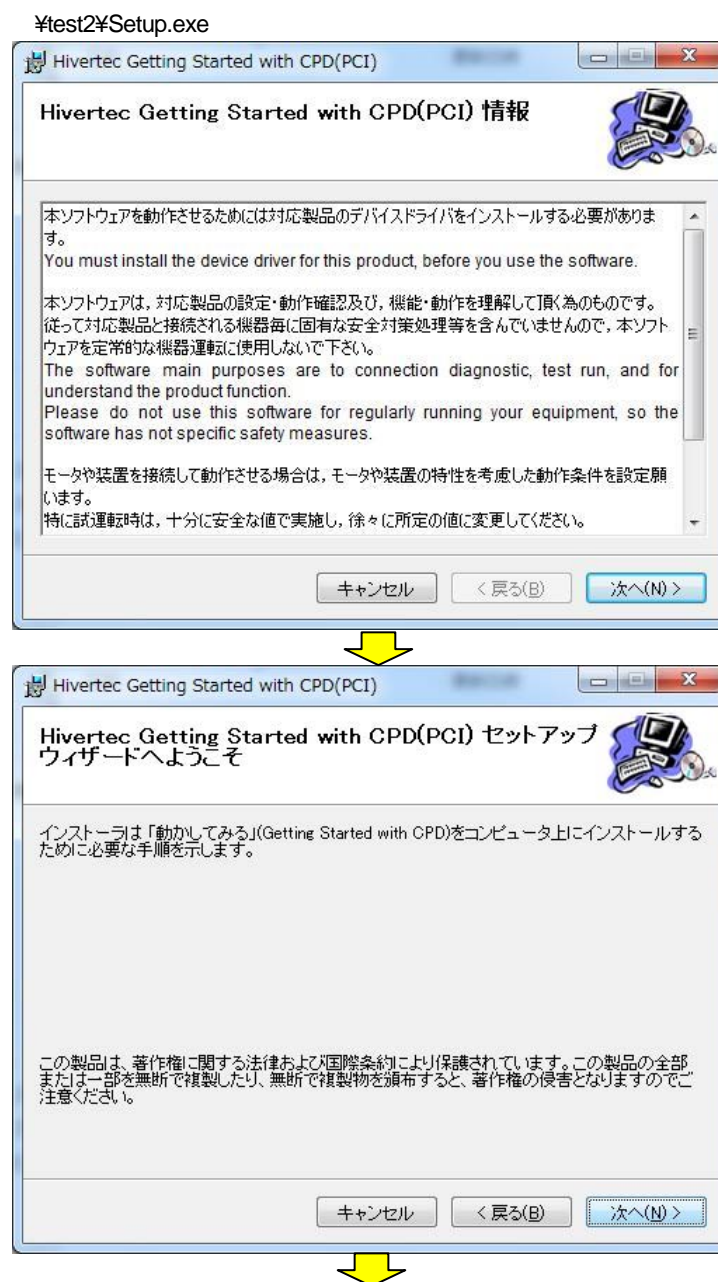
## 5.7 Windows HPCI-CPD5016

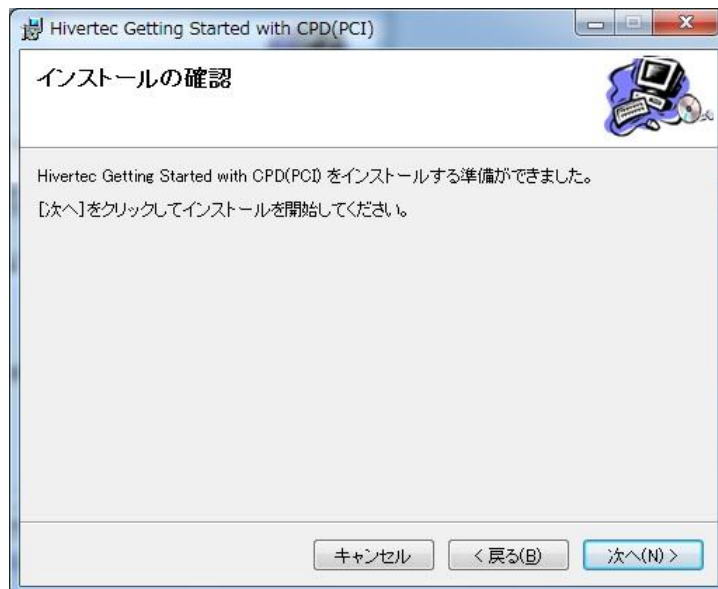
HPCI-CPD5016

### 5.7.1

- OS : Windows XP, 2000 .NET Framework2.0 , Windows7
- : 400 MHz Pentium
- RAM : 96 MB
- : 280 MB
- Microsoft Internet Explorer 6.0
- Windows 3.0
- : 800 x 600 256

### 5.7.2



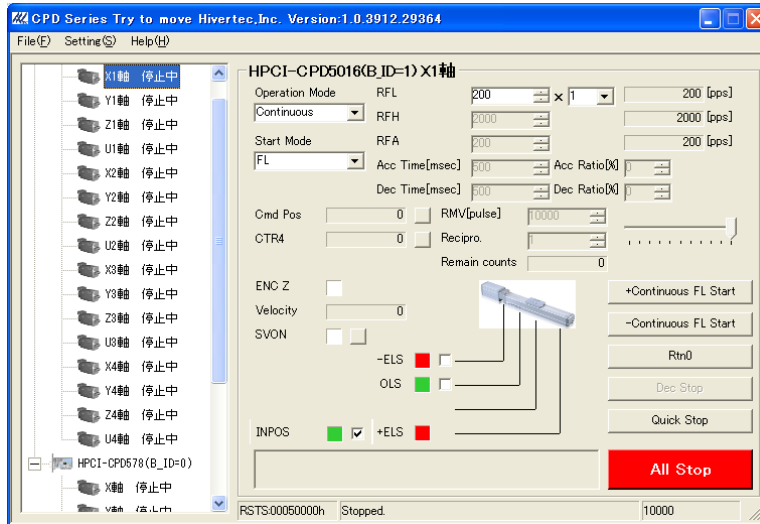




Hivertec PCI CPD



5.7.3



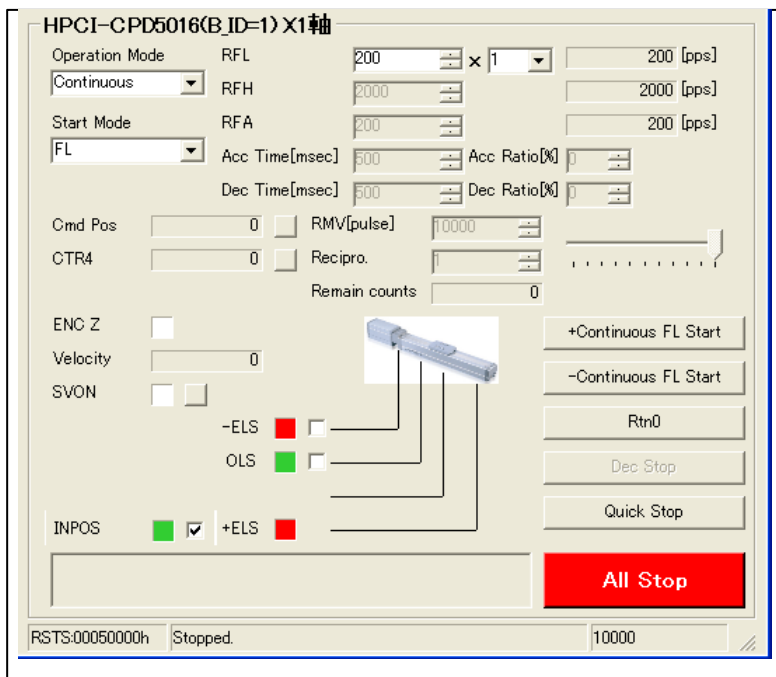
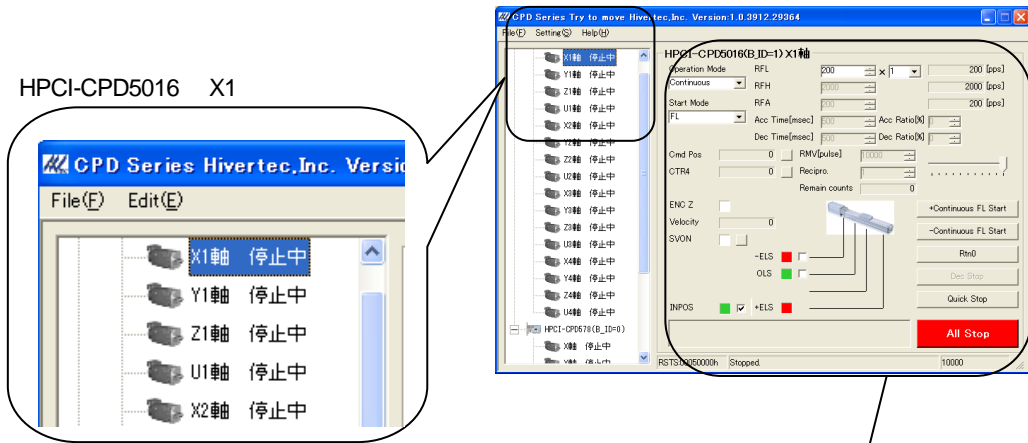
5.7-1

[ ]

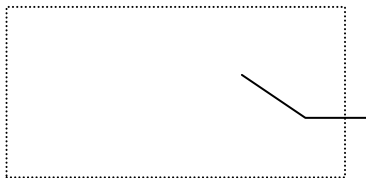


5.7-2

5.7.4

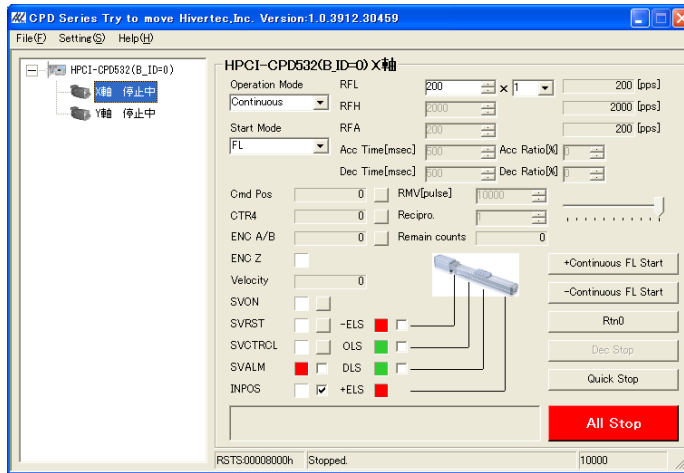


” ” ” ”

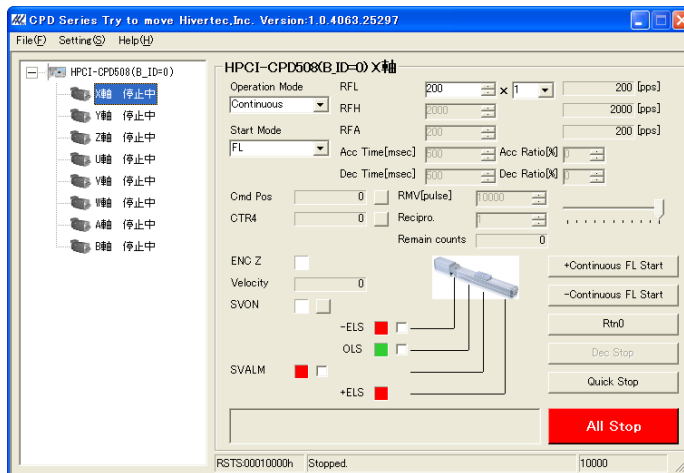


## 5.7.5

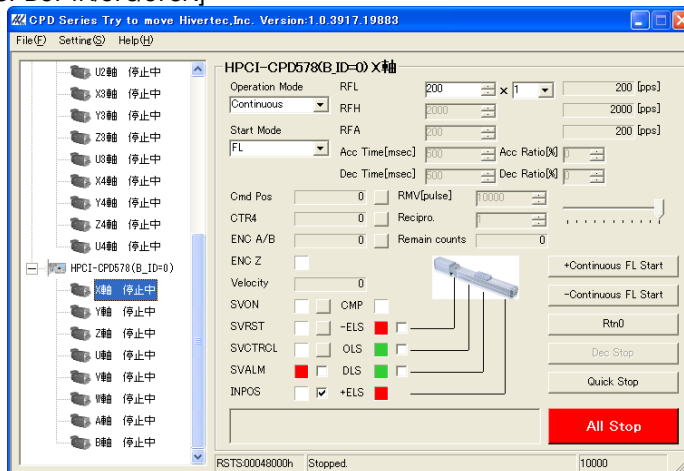
[HPCI-CPD532/534]



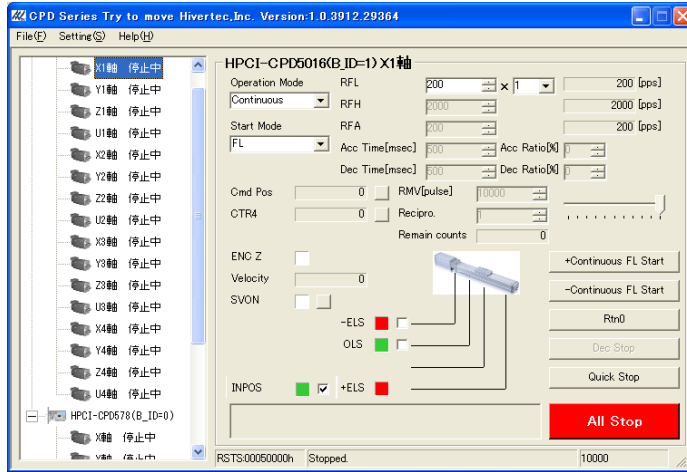
[HPCI-CPD508]



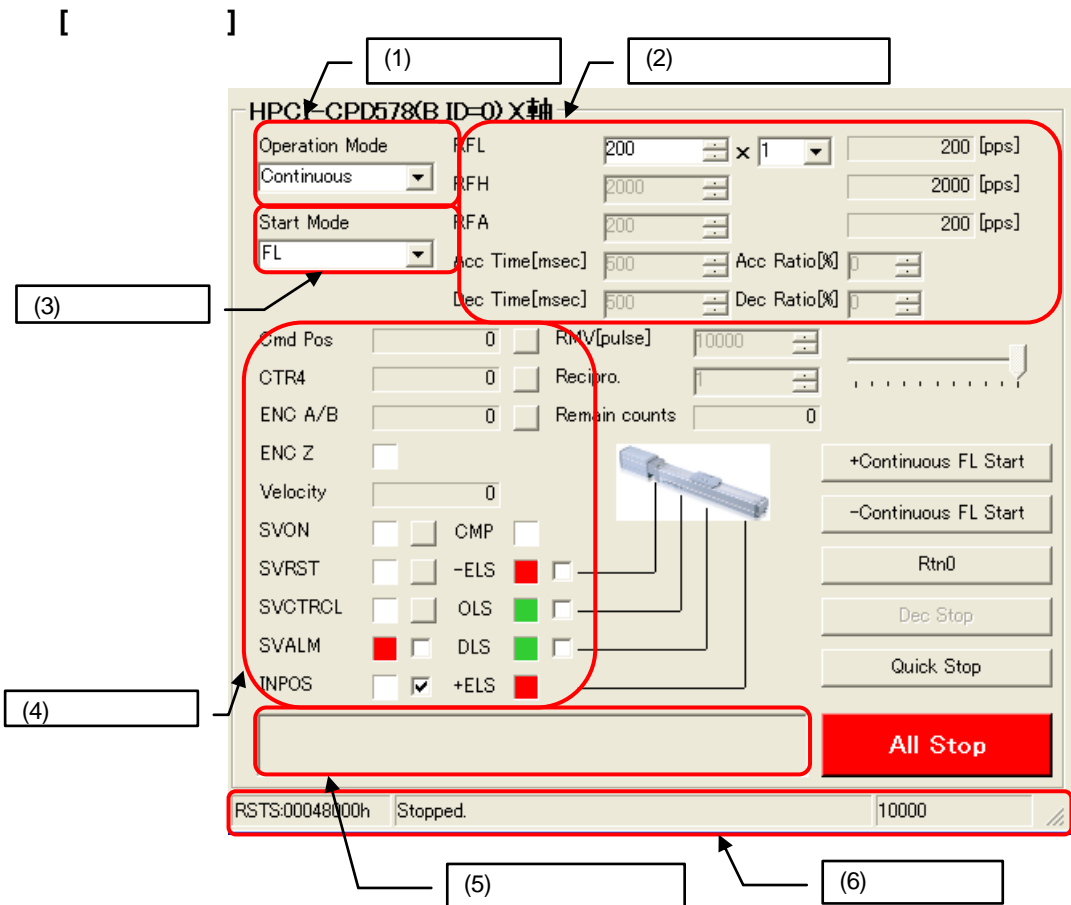
[HPCI-CPD574N/578/578N]



[HPCI-CPD5016]

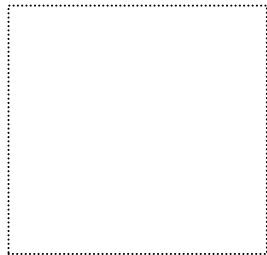


HPCI-CPD578N



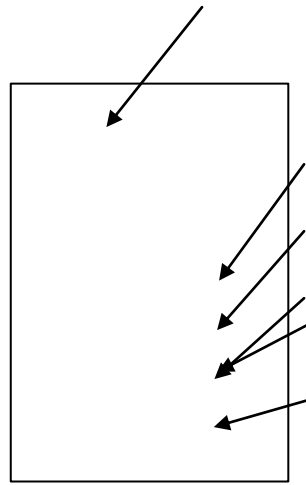
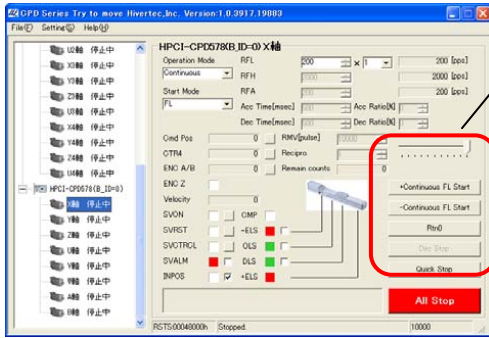
(1)

4



Continuous  
 Homing  
 Positioning  
 Reciprocating

(a)

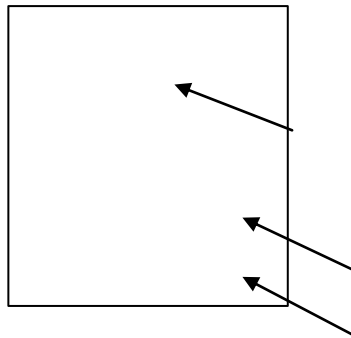
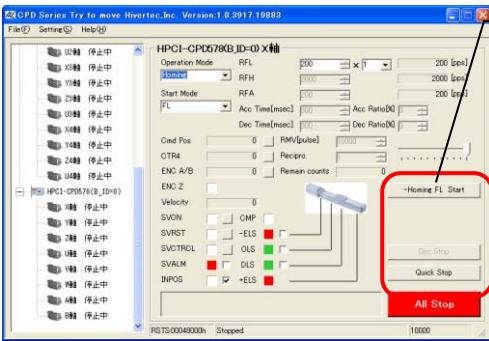


100% 0~100%

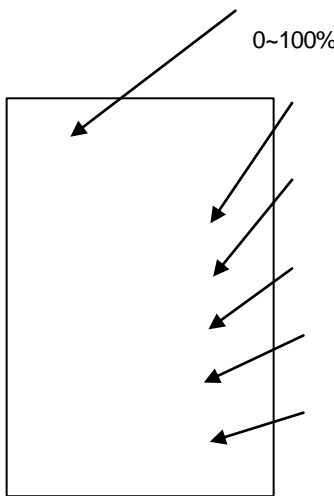
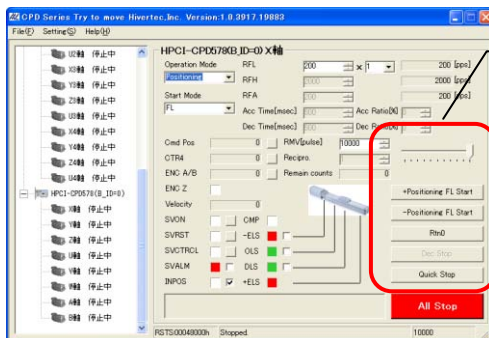
0

(b)

(ORG Z Z )



(c)

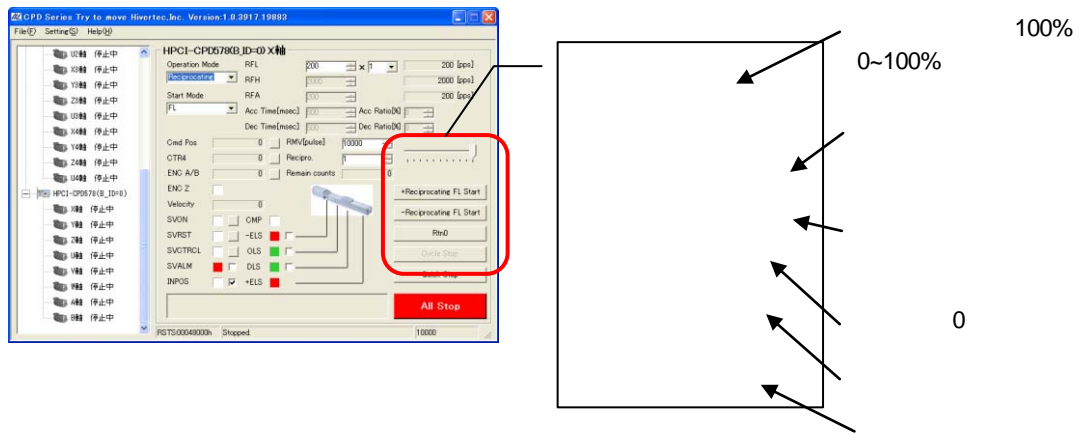


100%

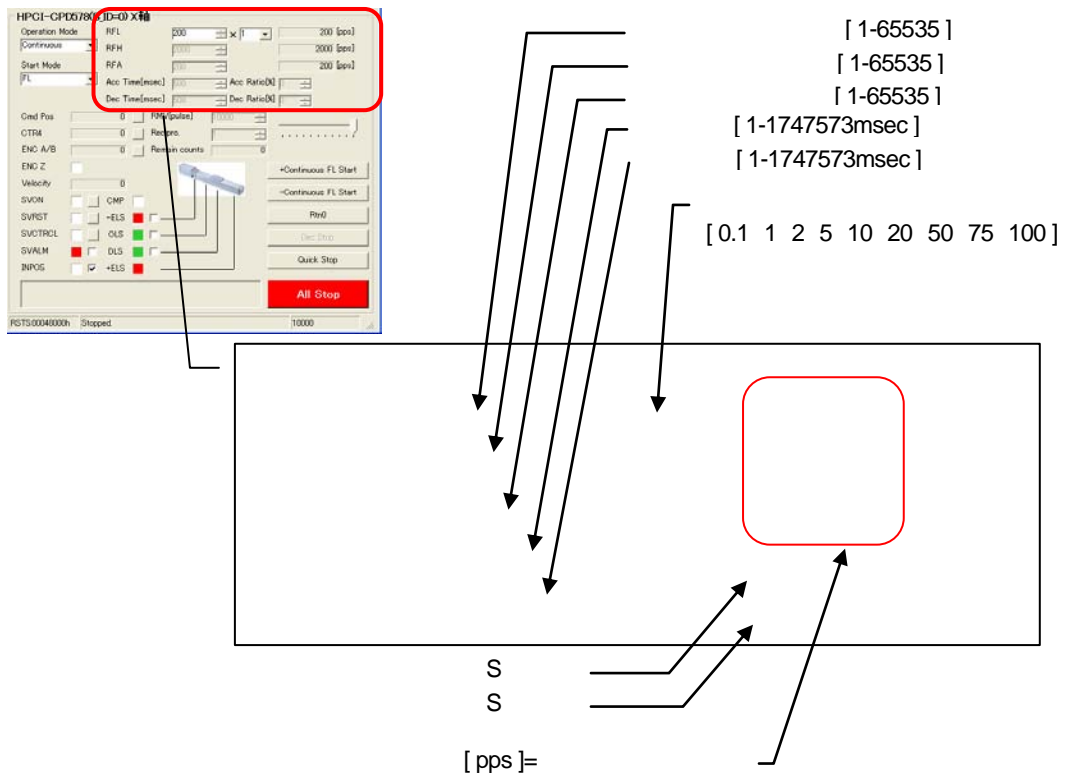
0~100%

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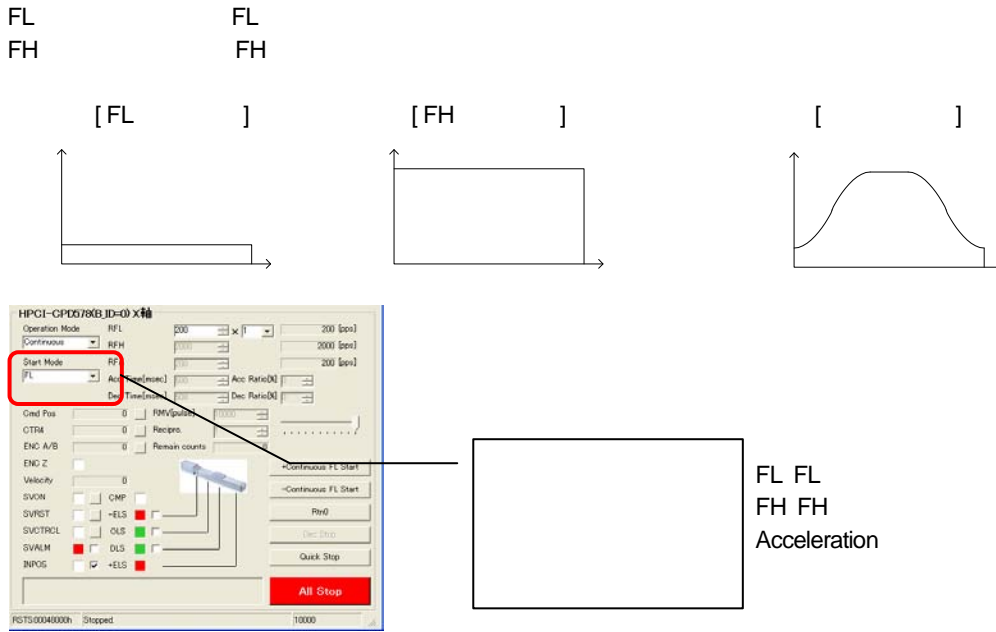
(d)



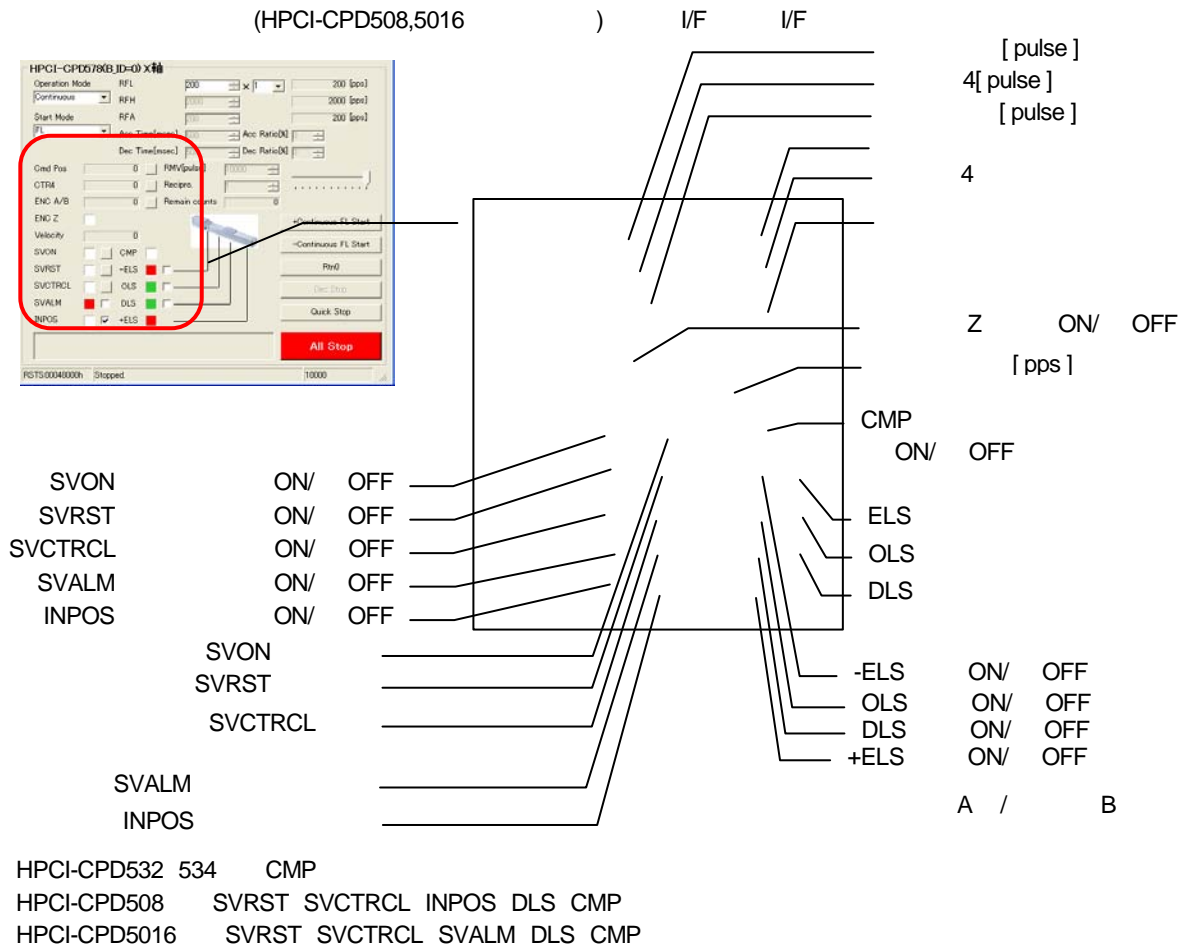
(2)



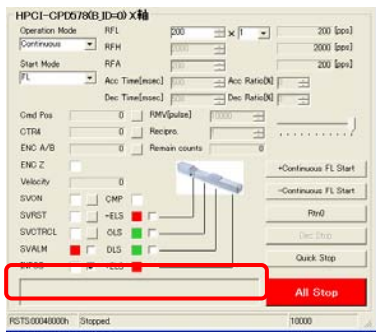
(3)



(4)



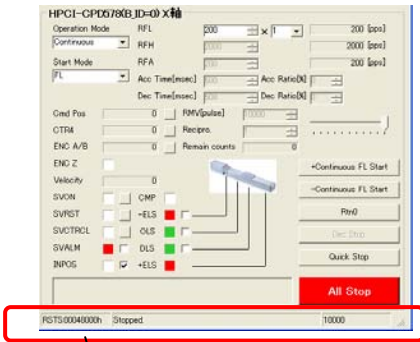
(5)



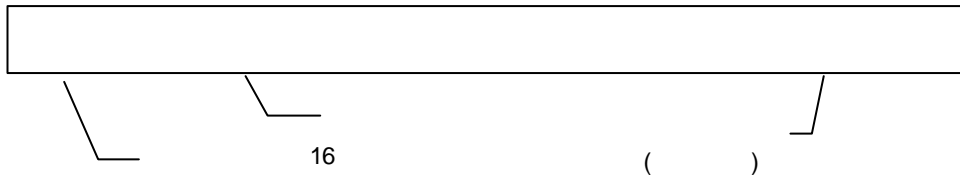
- [ ]
- "Normal End."
- "Stop by SVALM." SVALM
- "Stop by -ELS " -ELS
- "Stop by +ELS " +ELS
- "Stop by DLS." DLS
- "Stop by +SLS." +SLS
- "Stop by -SLS." -SLS
- "Stop by EMG " EMG

[ ]  
"Encoder signal error "

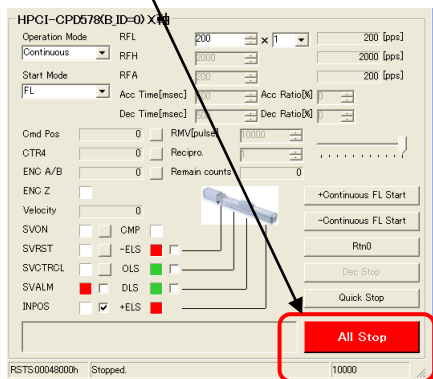
(6)



- [ ]
- "Stopped."
- "During acceleration."
- "During deceleration."
- "During auxiliary speed operation. (FA)" FA
- "During base speed operation. (FL)" FL
- "During operational speed operation. (FH)" FH
- "Waiting for INPOS." INPOS



(7)

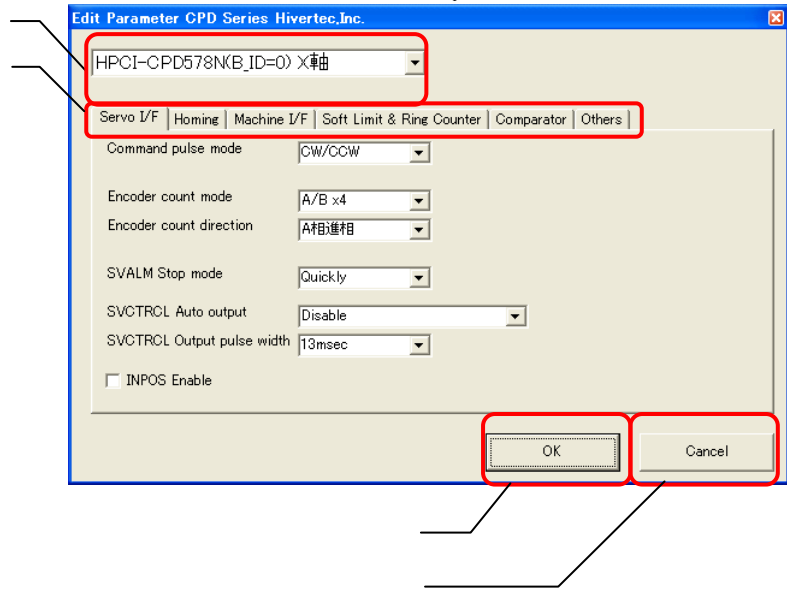
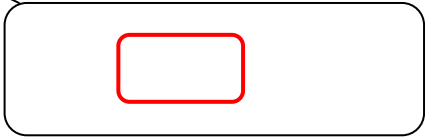
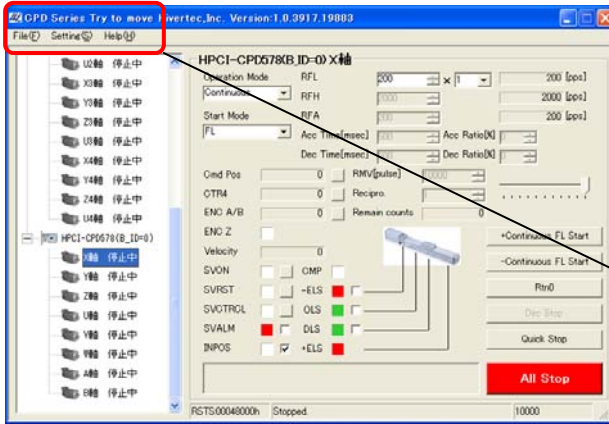


# 5.7.6

"Setting(S)"

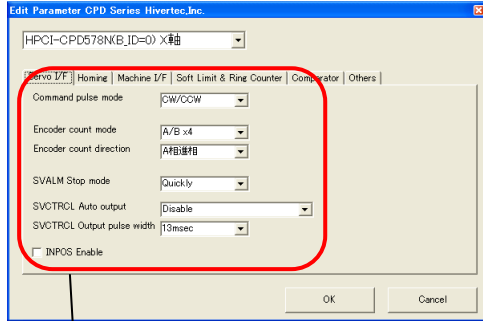
I/F

I/F



(1) I/F

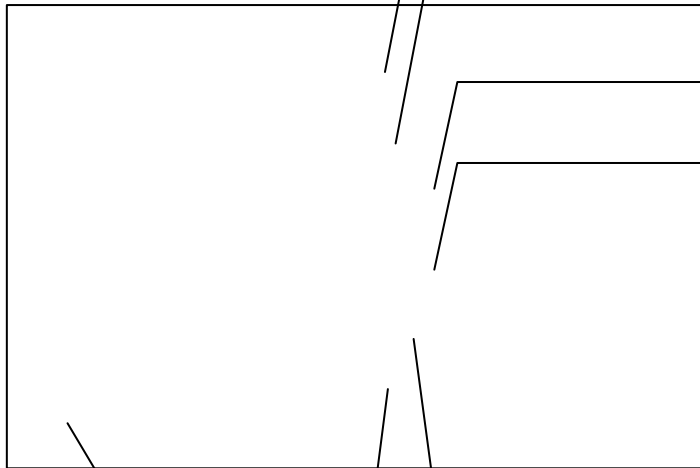
I/F



CW/CCW  
Pulse+Dir  
A/B

A/Bx1 1  
A/Bx2 2  
A/Bx4 4  
UP/DOWN

A B  
SVALM  
Quickly  
Deceleration



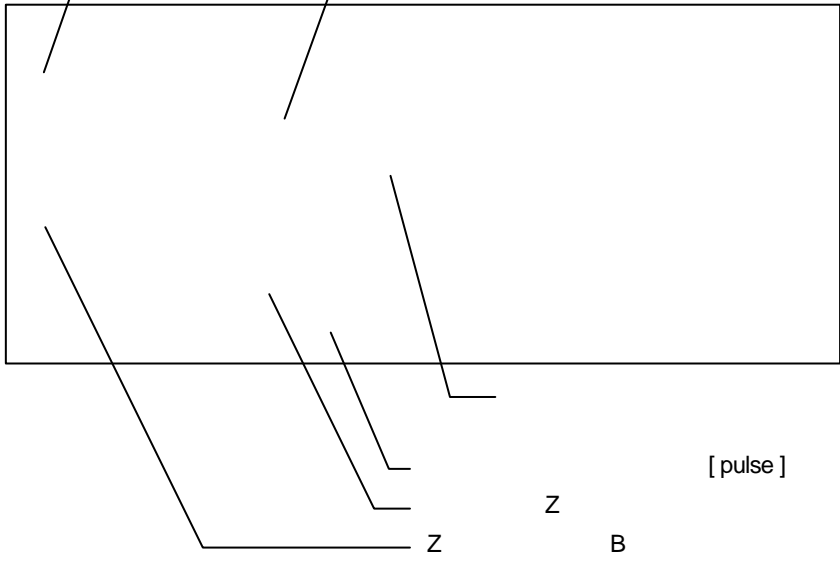
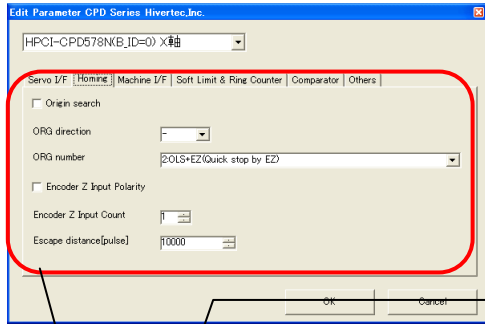
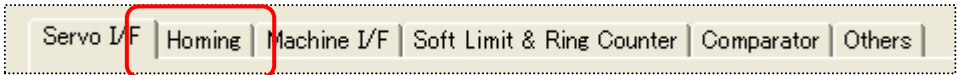
INPOS  
ON  
SVCTRCL

SVCTRCL  
Disable  
Homing Completed  
Error stop  
Homing Completed & Error stop

HPCI-CPD508  
HPCI-CPD5016

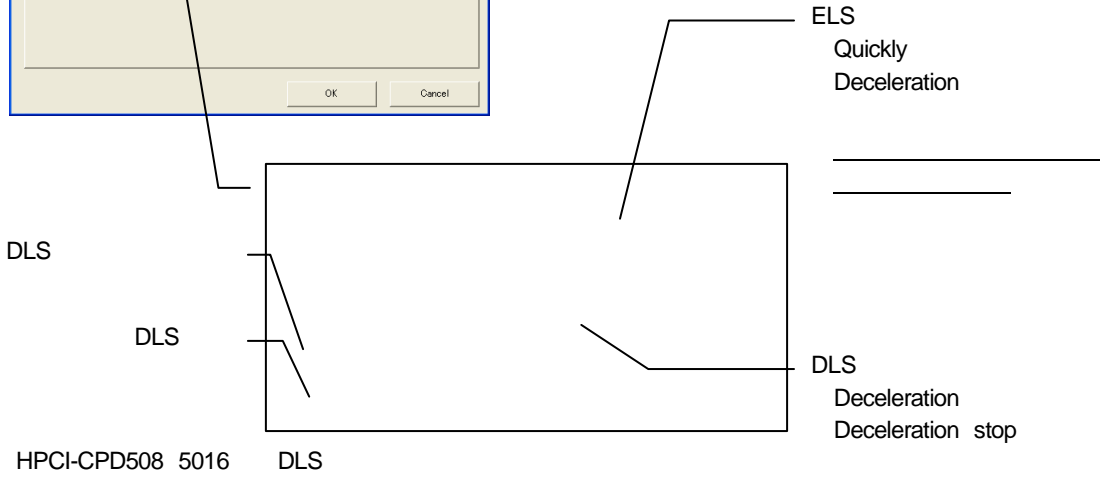
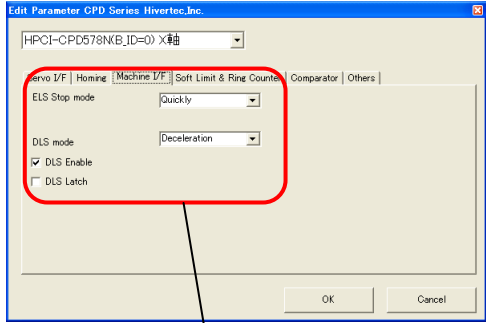
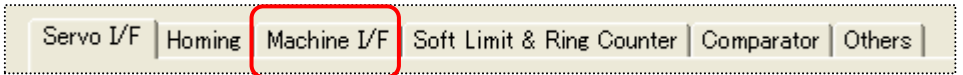
SVCTRCL INPOS  
SVCTRCL SVALM

(2)



(3) I/F

I/F(ELS DLS)



(4)

