

EAX-Q35 DIO PIN AND SERIAL PORT FAQ / Application Note

Subject : Explain the DIO and COM port function of EAX-Q35

FAQ Document No: _____ Date: 2011/12/06

Model Name. EAX-Q35 _____ Rev. _____

Category: General H/W S/W Others, 寫小分類

Purpose:

The customer wants to know how to use DIO and Com port function in detail.

1. DIO 16 bit (8-in/8-out by PCA9555) :

System	
CPU	Intel® Q35 LGA775 socket for Intel® Core™2 Quad / Core™2 Duo / Processors Compatible with Intel® 05B/05A/06 processors Support Intel® next generation 45nm Multi-Core CPU
FSB	1333 / 1066 / 800 MHz
BIOS	AMI 32 Mb SPI BIOS
System Chipset	Intel Q35 GMCH/ICH9R
I/O Chipset	Winbond W83627DHG-A
Memory	Four 240-pin DIMM sockets support up to 4 GB Dual Channel DDR2 800/667 SDRAM
Watchdog Timer	Reset: 1 sec.~255 sec.
H/W Status Monitor	Monitoring temperatures, voltages, and cooling fan status. Auto throttling control when CPU overheats
Expansion Slots	1 x PCI Express X16, 1 X PCI Express X 1, 5 x PCI (PCI Rev. 2.3 compliant)
DIO	16 bit (8-in/8-out by PCA9555)

“DIO” is used for GPIO (General Purpose Input/Output) through a chip which is named “PCA9555”. It provides 16 bits of General Purpose parallel Input/Output (GPIO) expansion for I2C-bus/SMBus applications.

How to use the “DIO”?

Since it has 16 pins to input/output signal, it can be connected some devices and programable controlled. Then it transforms those signals into “SDL” and “SDA” signal per “PCA9555”.

Then, it communicates signal to other devices per “SDL” and “SDA” (I2C-bus/SMBus).

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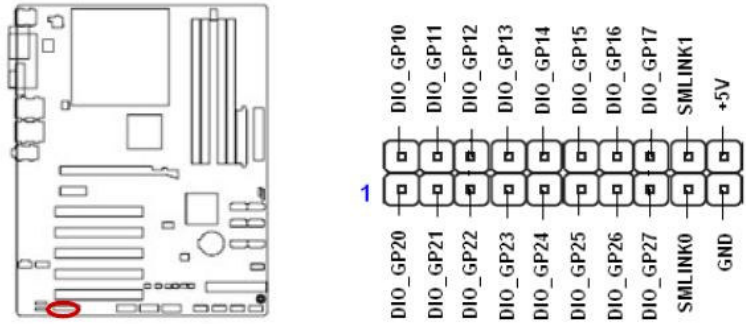
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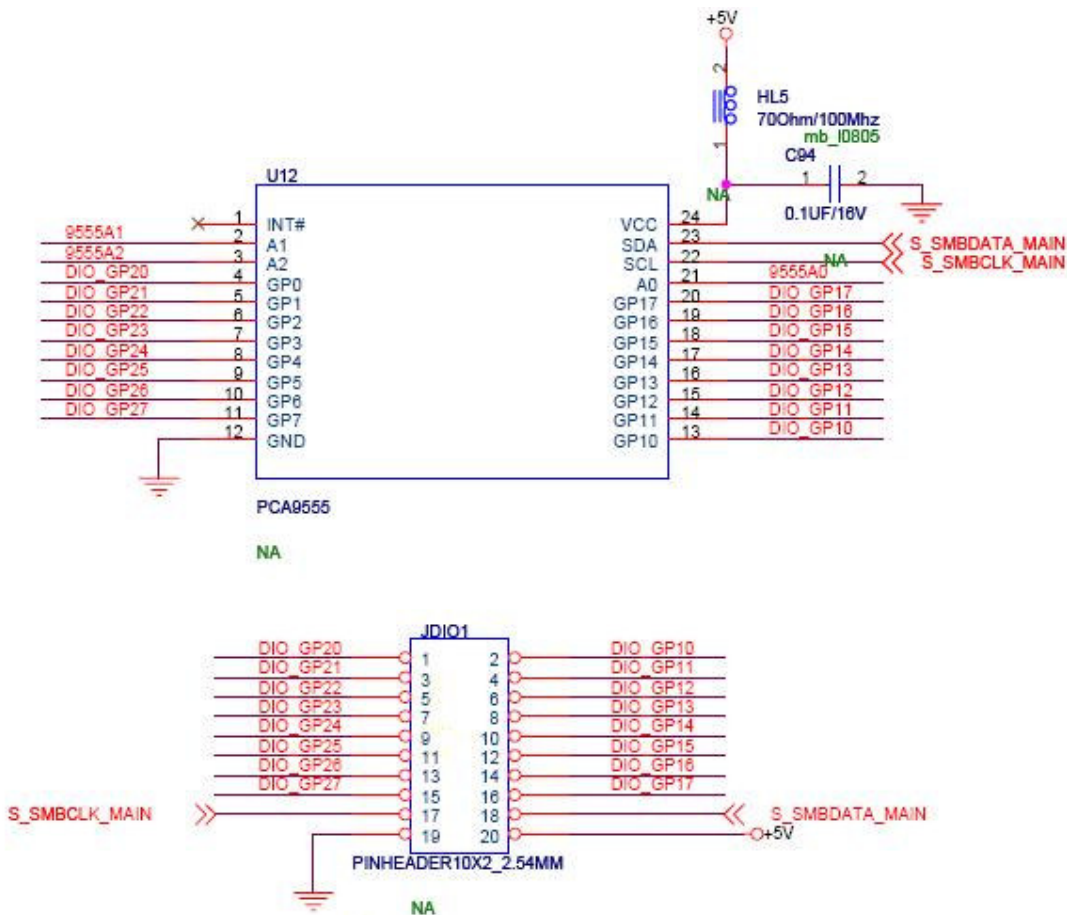
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The definitions of the "JDIO Pin":

1.8.11 Digital Audio Connector (JDIO)



The scheme of the "JDIO Pins" and "PCA9555" chip:



For example, it can be used to control some sub-systems such as "Temp sensor", "Counter", etc. Moreover, it can be connected the control device such as "10 Digit Numeric Keypad".

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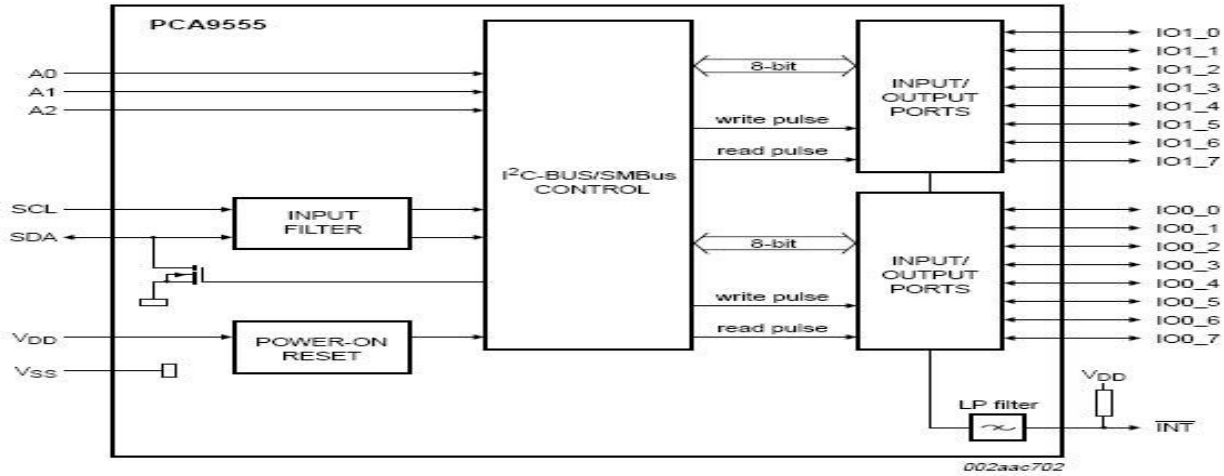
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The Block diagram of PCA9555:



Remark: All I/Os are set to inputs at reset.

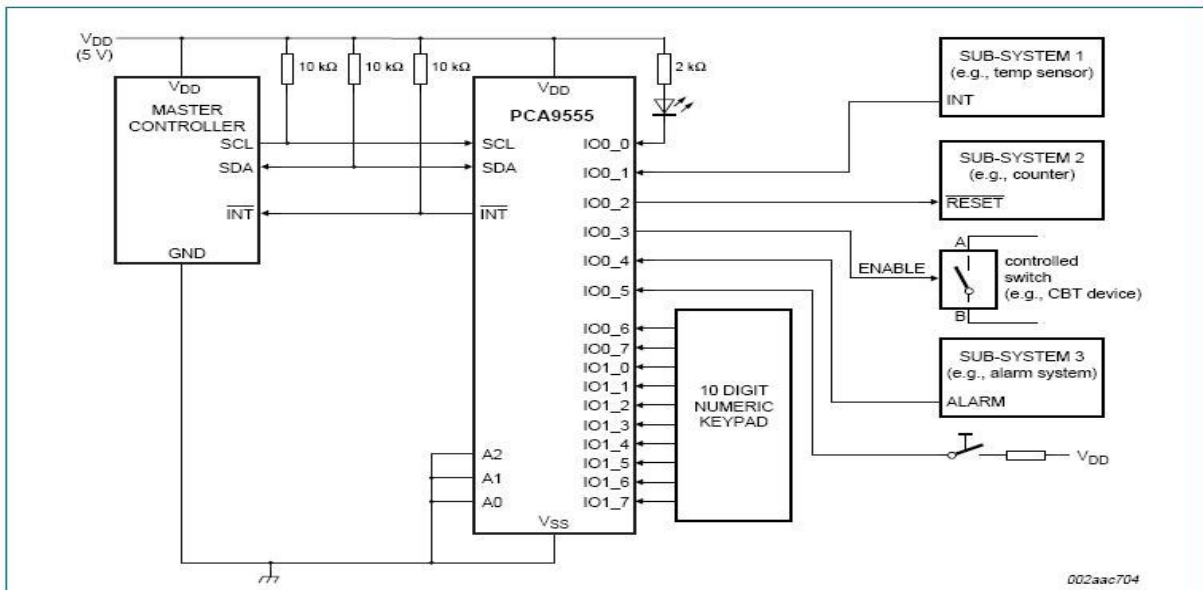
Fig 1. Block diagram of PCA9555

NXP Semiconductors

PCA9555

16-bit I²C-bus and SMBus I/O port with interrupt

8. Application design-in information



Device address configured as 0100 000xb for this example.
 IO0_0, IO0_2, IO0_3 configured as outputs.
 IO0_1, IO0_4, IO0_5 configured as inputs.
 IO0_6, IO0_7, and IO1_0 to IO1_7 configured as inputs.

Fig 19. Typical application

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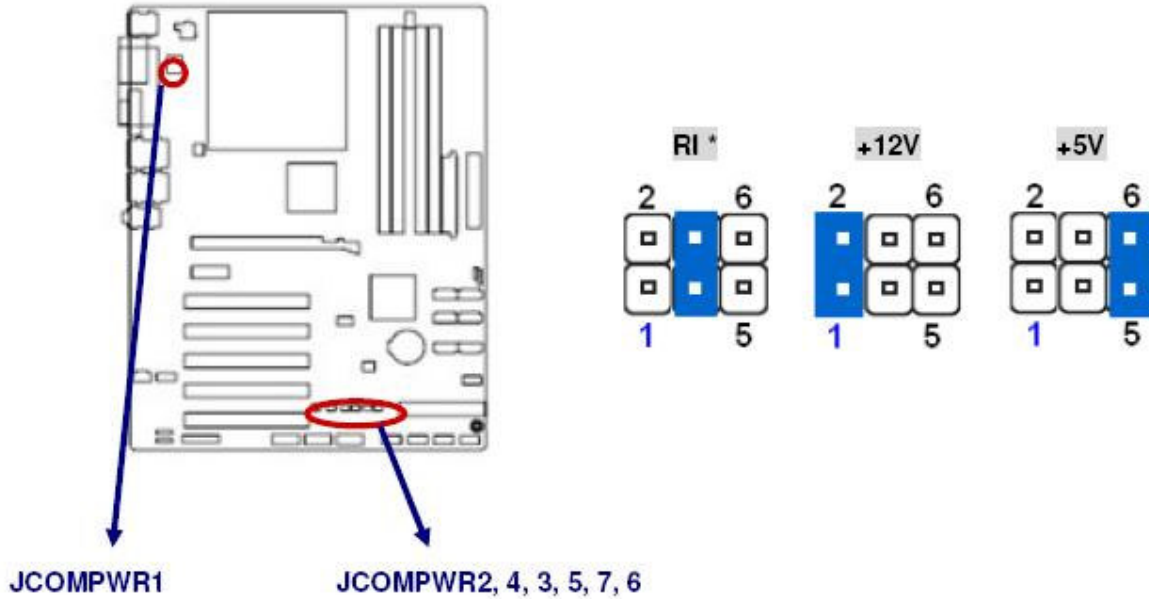
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2. COM1, 2, 3, 4 RI/+5V/+12V Select (JCOMPWR1, 2, 3, 4) :

1.7.3 COM1, 2, 3, 4 RI/+5V/+12V Select (JCOMPWR1, 2, 3, 4)



Most of time, the COM1,2,3,4 are set in "RI"(default). The "RI" symbol means "Ring indicator". In RS-232 communication protocol, the signal dedicate to "tell DTE that DCE has detected a ring signal on the telephone line", it can be used to wake the computer from sleep mode.(Enter to BIOS to set "wake on ring")

Serial Pinouts (D25 and D9 Connectors):

D-Type-25 Pin No.	D-Type-9 Pin No.	Abbreviation	Full Name
Pin 2	Pin 3	TD	Transmit Data
Pin 3	Pin 2	RD	Receive Data
Pin 4	Pin 7	RTS	Request To Send
Pin 5	Pin 8	CTS	Clear To Send
Pin 6	Pin 6	DSR	Data Set Ready
Pin 7	Pin 5	SG	Signal Ground
Pin 8	Pin 1	CD	Carrier Detect
Pin 20	Pin 4	DTR	Data Terminal Ready
Pin 22	Pin 9	RI	Ring Indicator

However, sometimes we must to abstract the power from the serial port.

Some especial cases, we can short the "JCOMPER1" Pin1 and Pin2 to get 12V power, or short the Pin5 and Pin6 to get 5V power.

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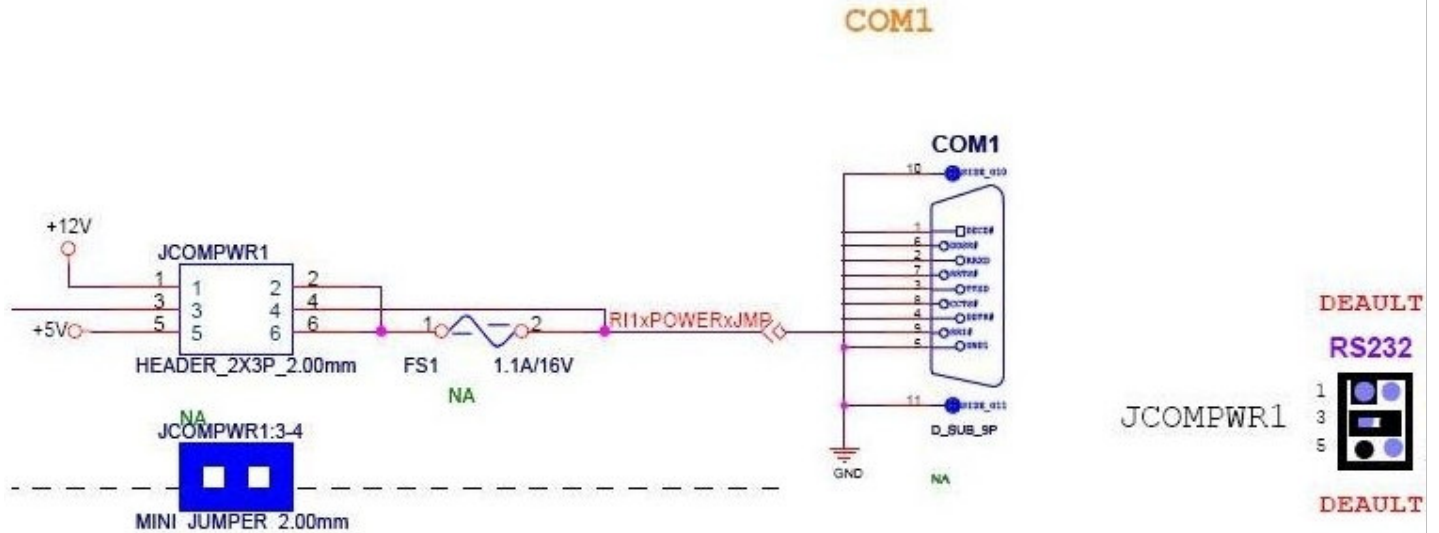
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The scheme of the part of COM1 and JCOMPER1:



Due to short the "JCOMPER1" Pin1 and Pin2 or Pin5 and Pin6, and then COM1 Pin9 will output 12V or 5V power (Pin5 is connected to the ground). It may damage the serial port devices, so it must be careful to use if need. (COM2,3,4 are the same as COM1)

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