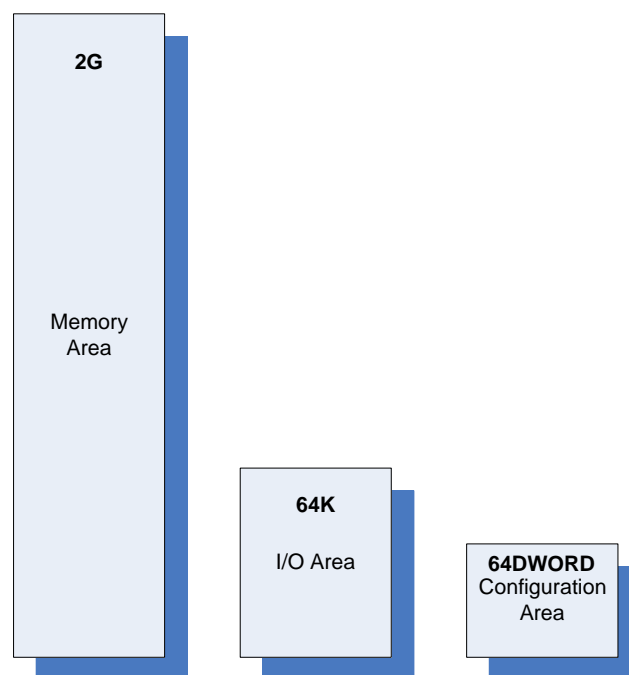


PCI configuration mechanism

For supporting Plug and Play mechanism, Hardware must support it as well as Software.

In case of PCI, for the hardware implementation, has separate Configuration Area in addition to Memory Area.

In other words, the processor of x86 family can be divided to the Memory Area, I/O Area, Configuration Area.



<Access Area for IBM PC series>

Each area is implemented by separate H/W bus signal to access each area. However, in case of IBM PC, the mechanism has been implemented in the processor itself to access the memory, I/O area. Using the I/O ports that can access because there is no signal line to access the configuration area.

Used I / O ports 0xCF8h (address port) and 0xCFCh (data port) and two Double word I / O port is used. In other words, 8byte of the I/O address is used. Basically Access is 32bit (Double word) Bus.

First, access method and location are designated at 0xCF8h(Address Port), and read or write to the location that above mentioned via 0xCFCh(Data Port).

Each meaning of 32 bit to write Address port is as follows.

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	Reserved							PCI Bus Number								Device Num.				Func.		Config. Addr				00					

<The meaning of what is written to the data port>

Bit31 : Enable Configuration space mapping, 1 = enabled

When the Configuration access, it is always set to "1".

Bit30-24 : Reserved

It is set to "0000000" for compatibility.

Bit23-16 : PCI Bus number

Normal system can have multiple PCI buses. Each PCI bus is connected via a PCI bridge, and, IBM PC, the process has used in the Host Bus, PCI Bus0 point increase from the PCI bus is one that usually "00000000" is set.

Bit15-11 : Device Number

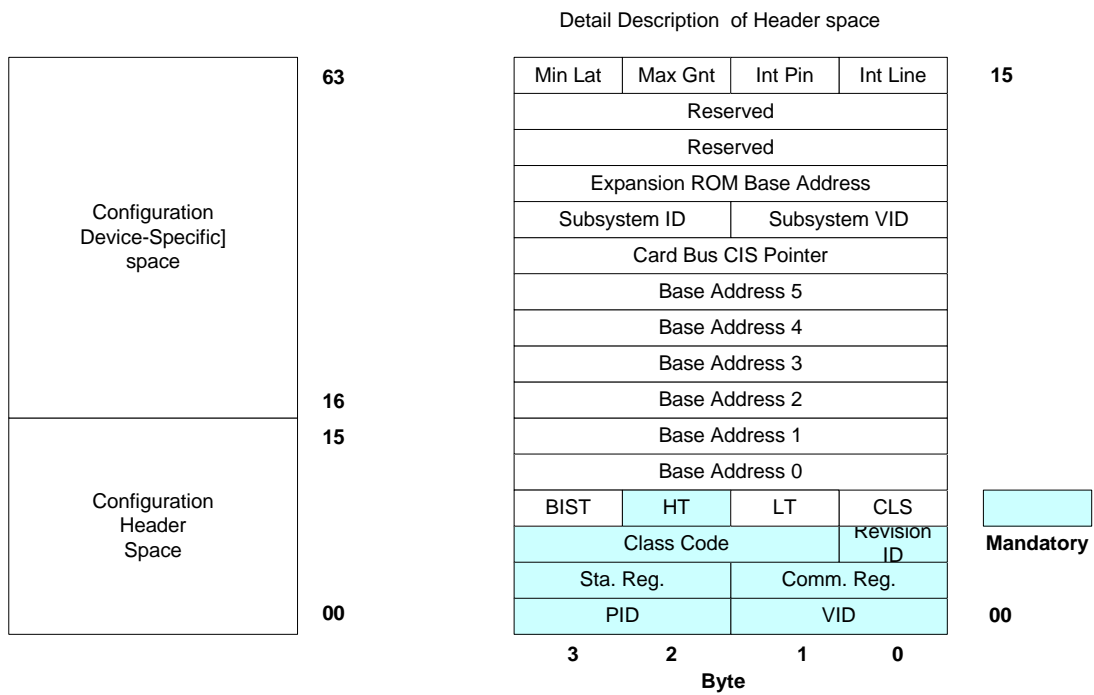
Each PCI device that installed at the System(PC) has the numbers from "0". The number is assigned by the system, numbering method is different depending on the installed location, so it should make sure system information.

Bit10-8 : Function

The PCI device can have a separate eight function. Each function block has a separate configuration area. In the normal state, it has one, so "000" is set.

Bit7-2 : Configuration register address

Each Function has total 64DWORD configuration area. Read / write register that you want to select. In case of VID(Vender ID) or PID(Product ID), Address is "0", so "000000" is set.



Configuration Address space