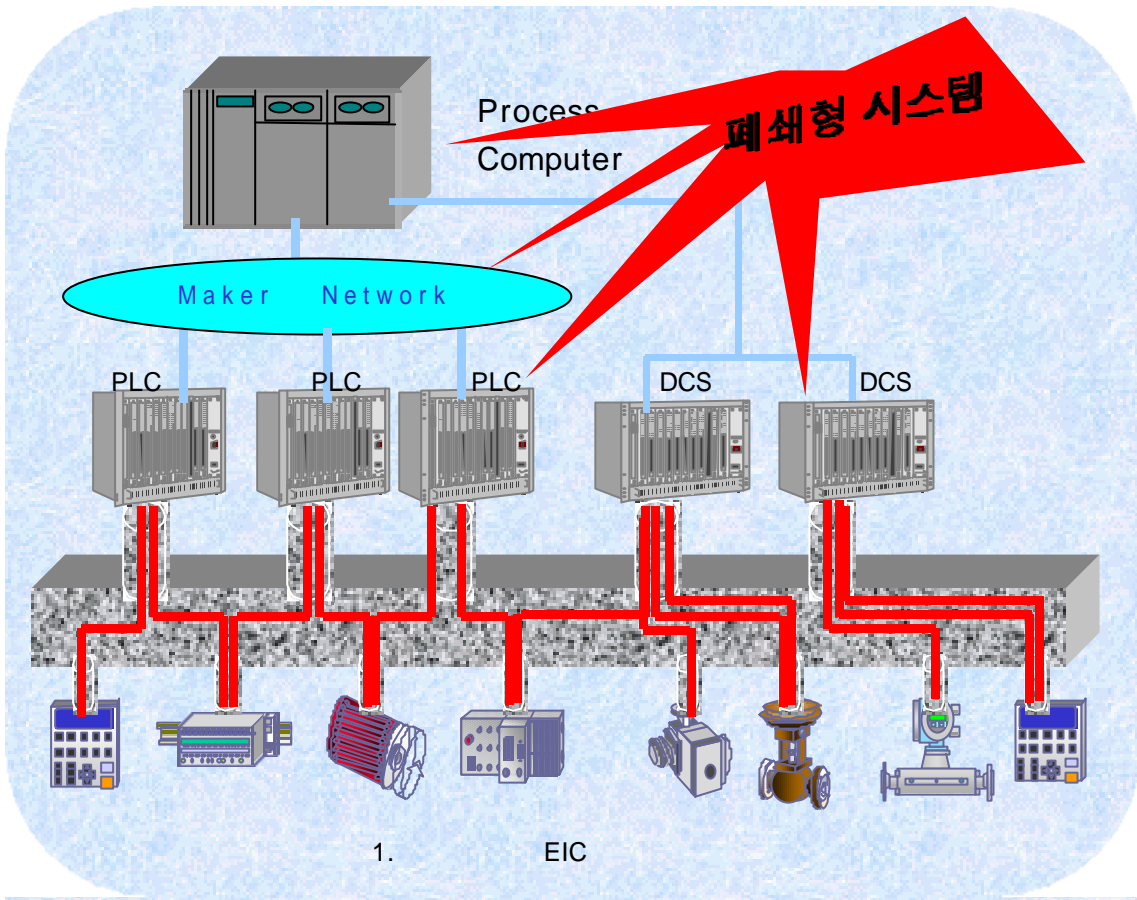# PC-based

PC-based

1.

PLC(Programmable Logic
Controller)/ DCS(Distributed Control
System) Benchmarking

PC-based

(Fieldbus) ,
Softlogic( ), Real Time
Operating System( )

30

Maker . PLC/ DCS
PC-based Real Time ,

, ,

Vendor . . Vendor

PC, FIELDBUS , Remote
IO , SoftLogic

PC-based PC-based
, Integration ,

.

. .

Maker

Maker

Maker **2. PC-based**

1

. Maker

Network

Gateway . Actuator
.

1

.

Process
Computer

폐쇄형 시스템

Maker Network

PLC   PLC   PLC   DCS   DCS

1.   EIC

PC-based EIC

2   PC-based

. PC-based   Open
Architecture   Hardware   Software
,   ,
1   (96' 98)   Windows NT   Hard
Real Time Operating System   .
Business
Computer   Open Network
PLC/DCS   Process   Fieldbus   Remote
Computer   I/O
PC-server   Sensor   Actuator   .

2   (98-2000)   /
PLC/DCS   PC-based
Controller
.

Reverse Engineering

PC-based

FORTRAN

.   .   2   PC-

server   Clustering Software

3.   **PC-based**   MS   Visual C++

.   450mpm

3.1   (Meter per minute)

Process   Computer   Micro   Tracking

Computer   PC-based

Remote IO

PROFIBUS   .

OPC

',   ,   C++

.   1

PC-based

3.2

Process   .

Computer   YEWCOM 8000(   )

PC-server   **3.4.**

Project   .   YEWCOM   Hardware

Architecture   PC-based Process

Computer

System Software   Package software

Hardware   ',   ,   ,

1   .

Tool   , 100msec

Y2K   Real Time   Task

50%

.   .

3.3

4. **PLC/DCS** **PC-**
based .

2) PLC PC-based

4.1
Maker PLC/DCS PC
Real Time OS, FIELDBUS,
SOFTLOGIC, Remote IO Device
Benchmarking
Solution

Shear Line

Sheet

PLC 7

PC-based .

PC-based

1 PC-based
. 1000 Point Digital, Analog, Pulse

Remote IO

PROFIBUS

SoftLogic

Steeplechase VLC(Visual Logic
Controller)

20msec

.

4.2
DCS One Loop
Controller 17 1 PC-based

2

Shear Line

PLC PC-based

.

3) PLC PC-based

4.3
1) DCS PC-based

110m .

82 4

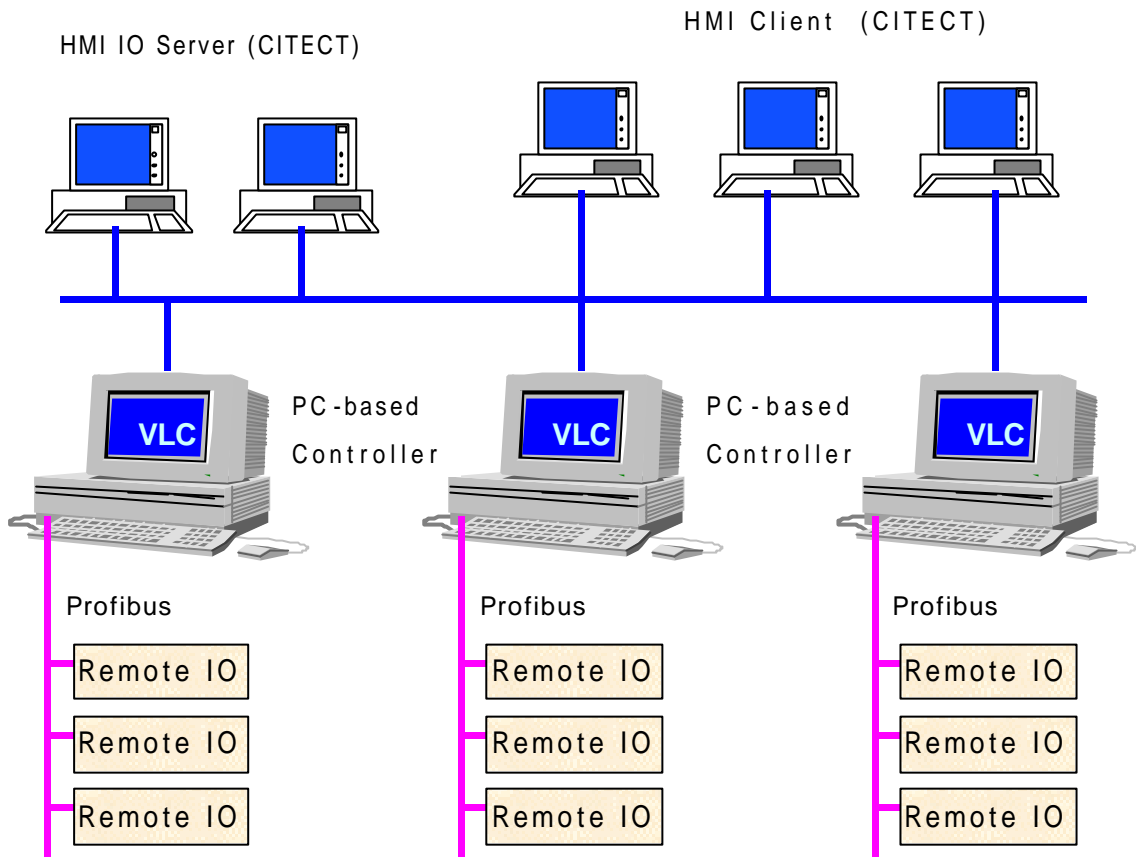PLC

DCS

17 One Loop 3 PC-based

Controller 1 .

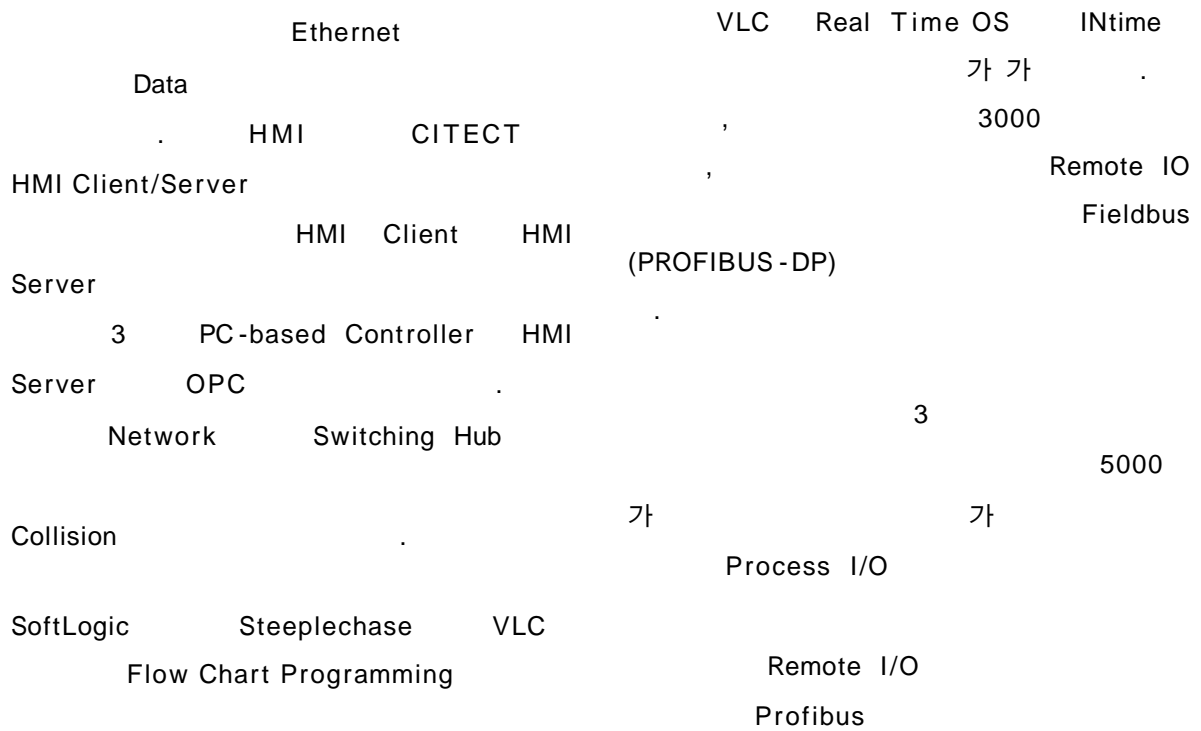PC-based

, ,

2 3 PC-based

PID

Controller , ,

HMI IO Server (CITECT)　　　　　　　　**HMI Client　(CITECT)**

PC-based
Controller　　　**PC-based**
Controller

VLC　　　　VLC　　　　VLC

Profibus　　　　　　Profibus　　　　　　Profibus

Remote IO　　　Remote IO　　　Remote IO

Remote IO　　　Remote IO　　　Remote IO

Remote IO　　　Remote IO　　　Remote IO

2.　　　　　　　　PC-based

Ethernet　　　　　　　　　VLC　　Real Time OS　　INtime

Data　　　　　　　　　　　　　　　　　　　　　.

.　　HMI　　　CITECT　　　　　　　　,　　　　　　3000

HMI Client/Server　　　　　　　　　　,　　　　　　　Remote IO

HMI　　Client　　HMI　　　　　　　　　　　　Fieldbus

Server　　　　　　　　　　　(PROFIBUS-DP)

3　　PC-based Controller　　HMI　　　　.

Server　　　OPC　　　　　　　.

Network　　　Switching Hub　　　　　　　　　3

5000

Collision　　　　　　　　　.

Process I/O

SoftLogic　　　Steeplechase　　VLC

Flow Chart Programming　　　　　　　Remote I/O

Profibus

PC-based Controller

40%

, 3000 Point

Logic 1.7msec

HMI 100msec

Monitoring Set up

4.4 PLC/DCS PC-based

1)

PLC/DCS PC-based

PC-based

2)

- PLC/DCS PC-based

- PC-based SoftLogic

- Filedbus

- PC-based Real Time Operating System

3)

Maker White Paper

/

4)

Maker PLC/DCS PC-based

Maker

. PLC/DCS

Tool

System Integration

SoftLogic PLC/DCS

PC-based

. 24

Flow
Chart Programming Ladder Logic

VLC(Visual Logic Controller)

. Flow Chart Programming

Ladder

Process

. PLC 5

Flow Chart

Windows NT   .

GUI   RTOS   Mission-critical

. SoftLogic   Process

Real

Time Operating System(RTOS)

. 100msec   PLC/DCS

Windows NT

SoftLogic   100msec   . INtime   RTOS

Multibus I, II PLC

Windows NT

RTOS   SoftLogic   iRMX (Intel   RTOS)   Windows NT

.   Version   Upgrade

RTOS   .

PC

Windows NT Operating   Remote IO   ,

System   Hard Real Time   ,   20msec

Windows NT   Fieldbus

6000 point

RTOS   Digital IO   2msec

PC-based RTOS   INtime   12Mbps

. INtime RTOS   20   200   PROFIBUS-DP   .
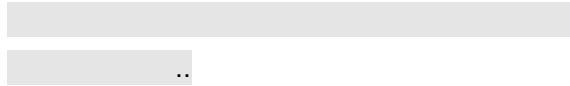
Applications   Fieldbus

1. PLC/DCS PC-based	PC-based	PC-based PLC/DCS .
2.SoftLogic	VLC	RTOS Flow Chart Programming
3.Filedbus	PROFIBUS-DP	Scan Time (0.5-100ms)
4.PC-based Real Time Operating System	INtime	Windows NT-based Hard Real Time OS

2. POSCO PC-based

.

.   PC-based

PLC/DCS

Interrupt

Scan Rate   Digital

Input   Interrupt   .

.   2   PC-   PC-based

based

.   .   /

5.

3   .

                                                    ,

Vendor

. Fieldbus

Hard   wire   Engineering

Cable

Culvert

43%   .

Windows NT   S/W   .

H/W

.

28%   ,

43%   Spare Part   Total Cost

70%   .

                                                                    ..

6. PC-based

                                            /

Solution   PC-

based   ..

PC-based

/   SoftLogic, Fieldbus, Real Time OS

Solution

표 3 : PLC/DCS 시스템과 PC-based 시스템 비교

	PC-based	PLC/DCS	
1.Hardware	POSCO 표준 적용, 범용제품 사용 EIC 통합	Maker 별도 제작, 전용제품 사용 EI 분리	원가 절감: 28%
2.System Software	POSCO 표준 Software Package	Maker 별도 Software	
3. Integration	POSCO 자체 Integration	Maker Engineer System Integration	
3.	표준화된 개발 Tool 사용, 유지보수	비표준 : Maker 별도제품 사용 : 유지보수	원가 절감: 30%
4.	Fieldbus 적용 Remote I/O 필드 <-> 제어기 Cable 수량감소 Remote IO 사용시 부분 Shutdown 가능 Cable 포설비 절감	Process I/O 사용 필드 <-> 제어기 Cable 수량증가 Cable 포설비 증가 유지보수 : 부분 정지 불가능	원가 절감: 43%
5.	표준화된 Spare Part 사용 표준화된 Tool 사용 다수의 Maker 경쟁가능 Maker 종속탈피	별도 Spre Part 구매 Maker 별도구매 (고가 유지보수) Maker 종속	

Solution

PC- based

.

SoftLogic, Fieldbus

.

Benchmarking   Simulation   ..
PC- based   Vendor

System
Integration
PLC/DCS
        Solution

                                    PC-
based
   Simulation
               .

(
    PROFIBUS
)

<   I/O   >

<   (2core)   >

<   PC- based Controller   >

**EIC   PC-
Based**

(사진~19.JPG

< sensor/Actuator>

<4200

>

(사진~16.JPG

< PLC Process I/O >

PC- based

PC- based

< Maker

PC- based PC

>

< Guidance HMI

Maker 21" CRT

PC 42'

>