

Need of computer control of power systems

The computer control of power systems are needed in

- ❖ Power system Planning
- ❖ System Monitoring
- ❖ Automatic generation control
- ❖ Security control
- ❖ Voltage or reactive power control
- ❖ Unit commitment
- ❖ Economic dispatch
- ❖ State estimation
- ❖ Contingency analysis
- ❖ Load forecasting

Increase in unit size, growth of interconnected and the need to maintain the system in normal mode requires sophisticated control, instrumentation and protection.

- ❖ The multiplicity of monitoring instruments in the control room and their distance apart make the observation of more than a few vitalises almost impossible, especially during the intense activity of plant start-up.
- ❖ The operation of changing plot parameters and take critical decisions.
- ❖ These requirements led to the development and application of more advanced solid
- ❖ state modular electronic instruments, computer based direct control and data processing systems.

Computer Configuration Trend

- ❖ The computer system used at power system has been undergoing continuous development over the years. Formerly, all the functions such as data acquisition, logging display, and control and performance calculations were performed by computer processing unit (CPU).
- ❖ In such system failure of any of the elegant leads to the total system breakdown. Thus, the need for a dual computer configuration arose which is quite costly.

- ❖ The further advancement in communication technology and powerful microprocessors has resulted in the cheap and reliable microprocessor based Distributed Processing System (DPS).
- ❖ It is based on the principle of LAN. Today, in all process industries including power plant, this system is employed for data acquisition and control.
- ❖ DPS consists of a number of microprocessors connected through data highway, which is passive in nature. Each processor is assigned a specific task independently.

