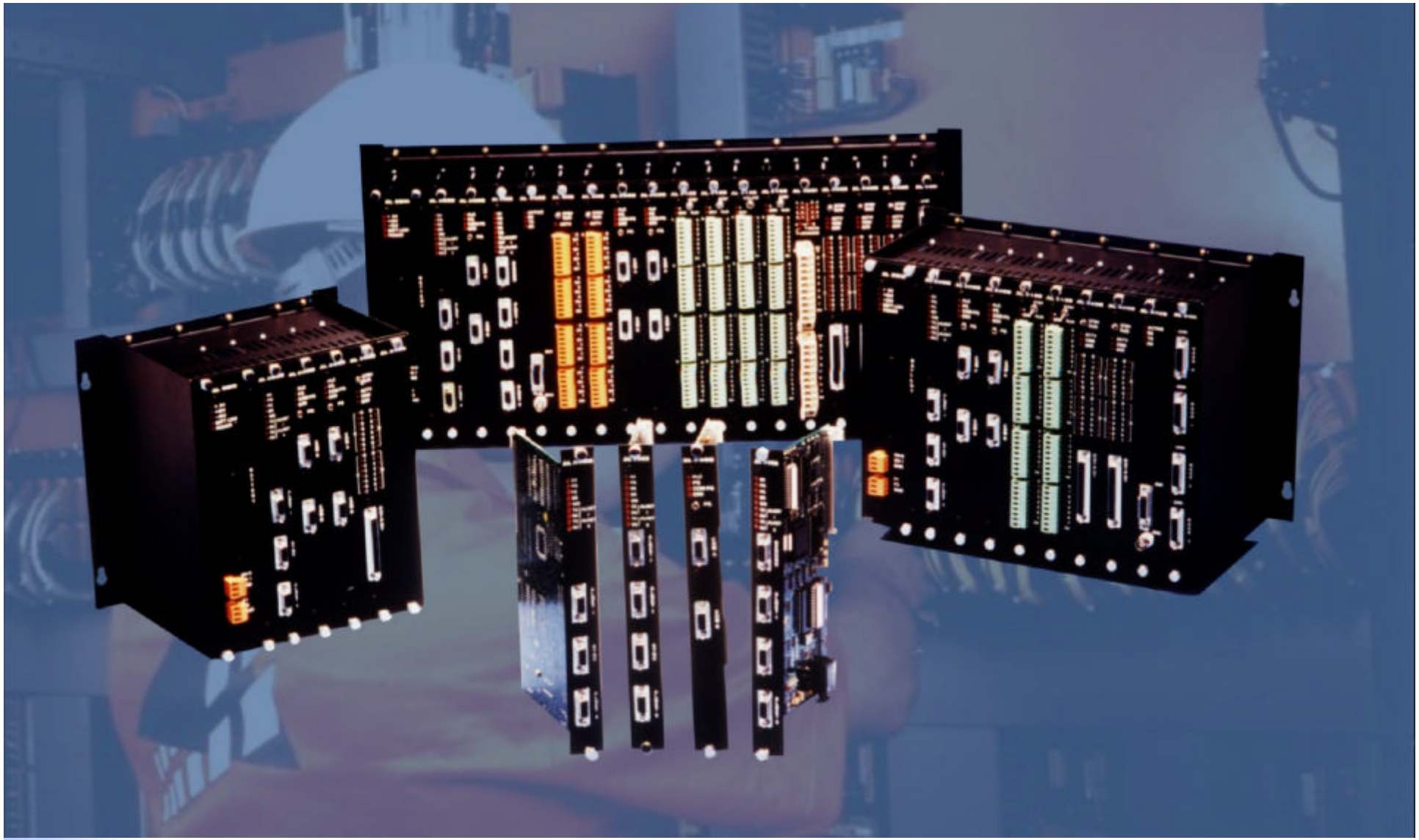


AL-2000 Series

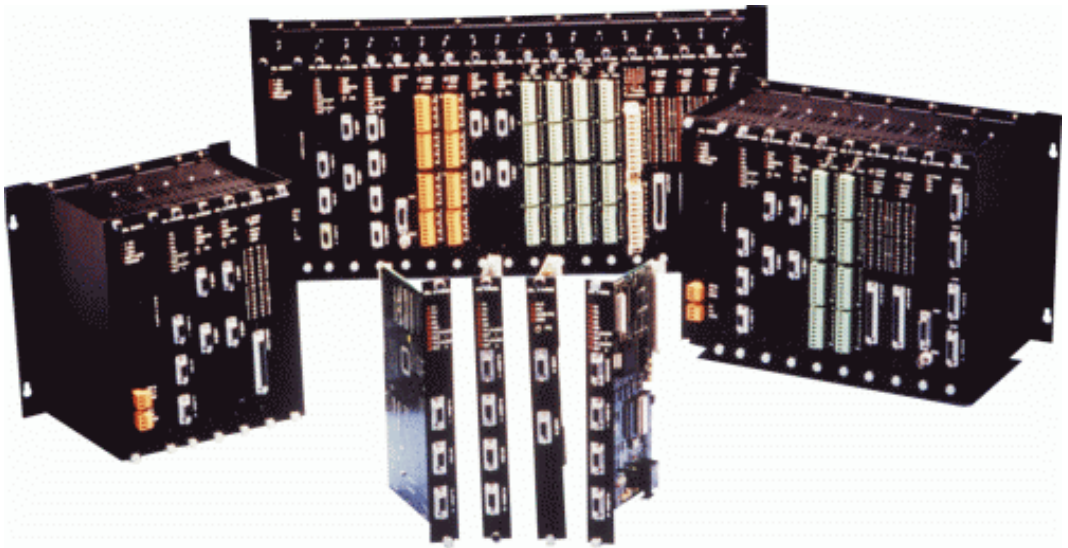
Rev. 1.1

altus

evolution in automation

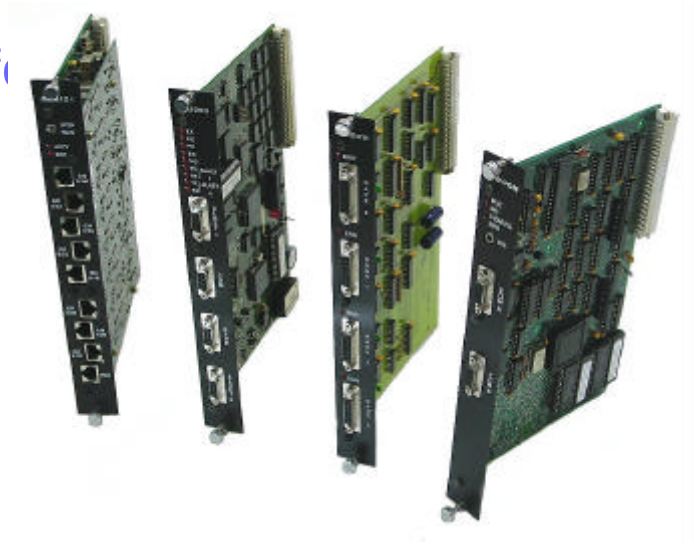
AL-2000 Series

- Programmable controllers for large applications
- “Hot stand-by” CPU redundancy
- Coprocessors available
- Big communications capacity
- Large and sofisticated selection of I/O modules



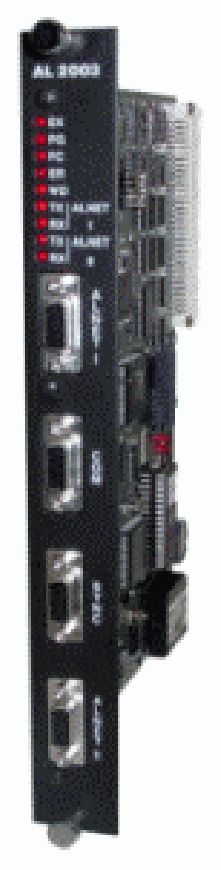
AL-2000 Series

- Multiprocessing, high speed and memory capacity
  - Enables diverse and complex solutions f Industrial
- High conectivity
  - CPUs integrate ANETII network with different protocols and open fieldbuses
- Complex algorithms calculation
  - PID control, Flow control and others by using special modules



AL-2000 Series

- PROFIBUS-DP redundancy
  - Trhough parallel processors
- Communication Drivers
  - Easy implementation for different types of equipments



AL-2000 Series Applications

- Large machine control
- Production lines control
- Process control such as chemical plants, oil refinaries, paper production, etc.
- Control and distribution of energy systems
- Data aquisition and time stamp
- Interlocking security
- Distributed I/O systems for large processes

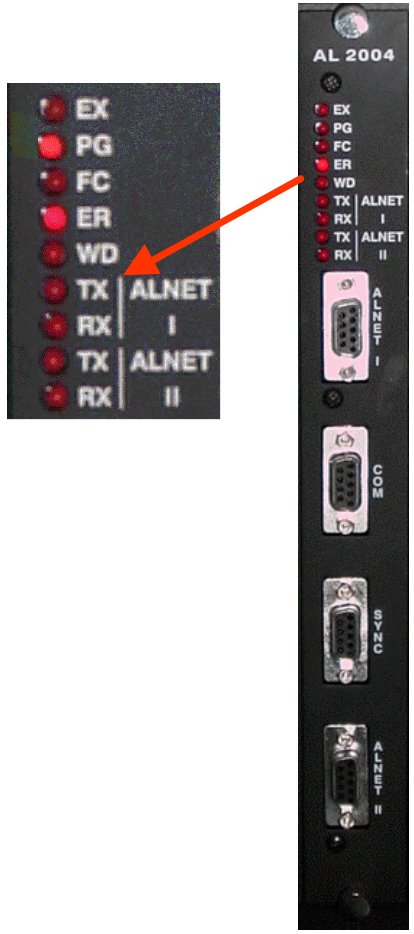
AL-2000 Series CPUs

- Multiprocessed and multitask programmable controller
- 2048 local I/O points and 8192 remote I/O points
- 142 modules for local I/O
- 1 MByte for program memory
- Online load of programs
- High communication capacity
- High performance
- Time syncronicity Global Position System - GPS
- Ethernet 10/100 Mbits network supervision
- Hot swap of I/O modules

AL-2004

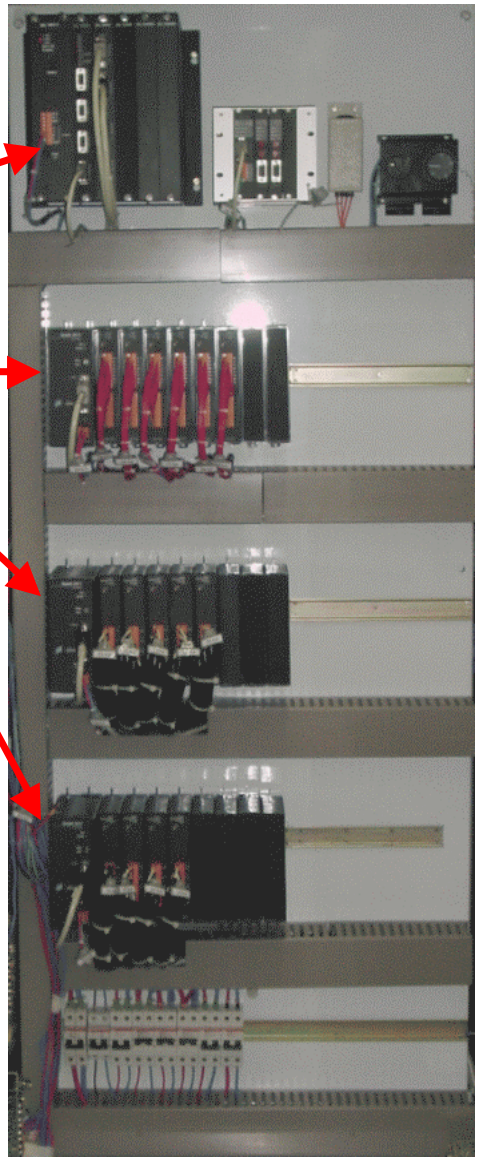
AL-2000 Series CPUs

- Real time clock and time stamp with 1 ms precision
- CPUs or remote I/O systems redundancy
- High diagnostics capacity
- Floating point operations
- LEDs indicating operation status on the front panel
- Architectures for:
  - Local I/O
  - PROFIBUS-DP network
  - Redundant CPUs
  - Redundant PROFIBUS-DP network and redundant CPUs



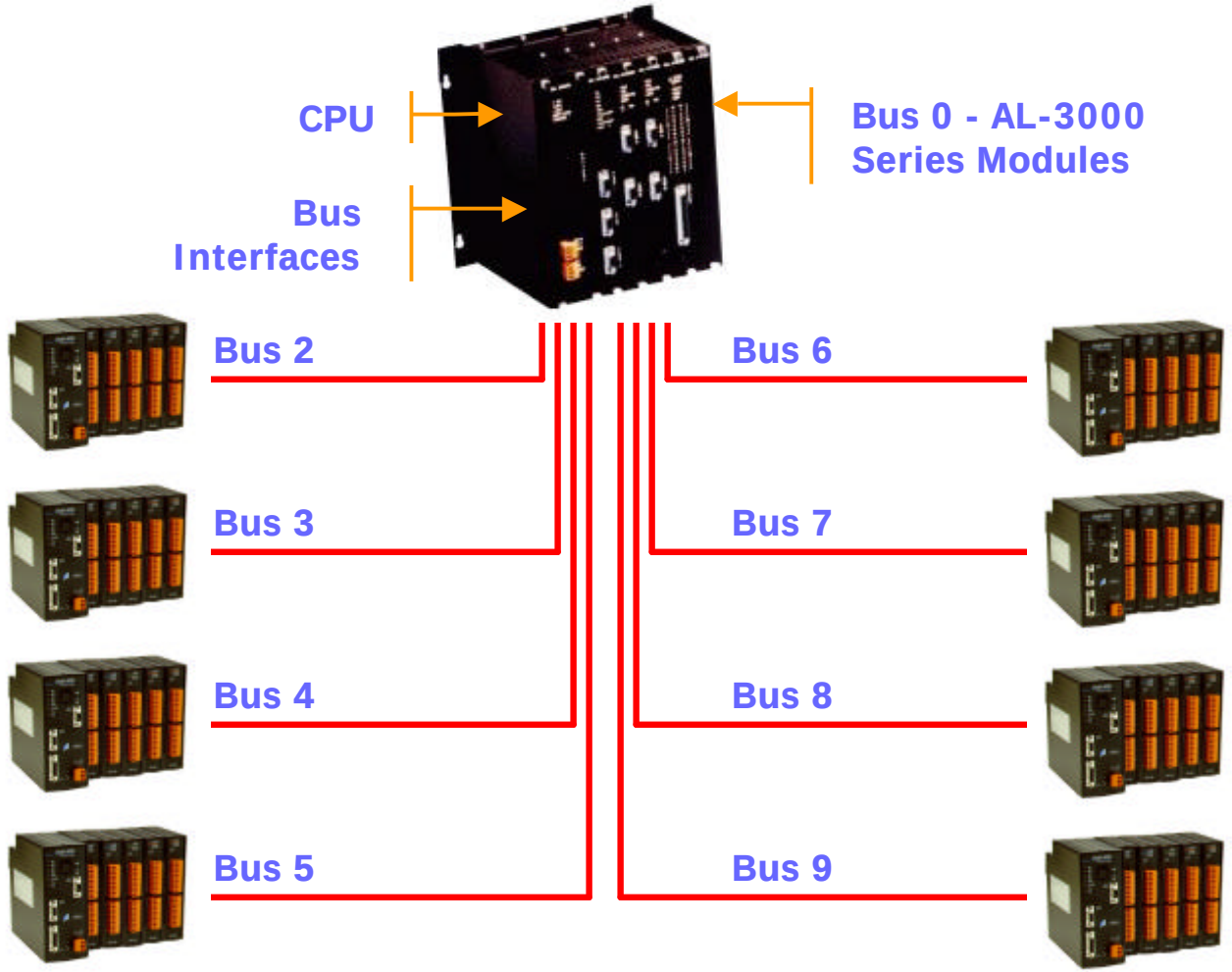
Local I/O

- CPU AL-2004 controls up to 2048 digital I/O points
- Hotswap for bus and/or I/O module
- 8 buses with 16 I/O modules
- 128 moldules of Quark Series



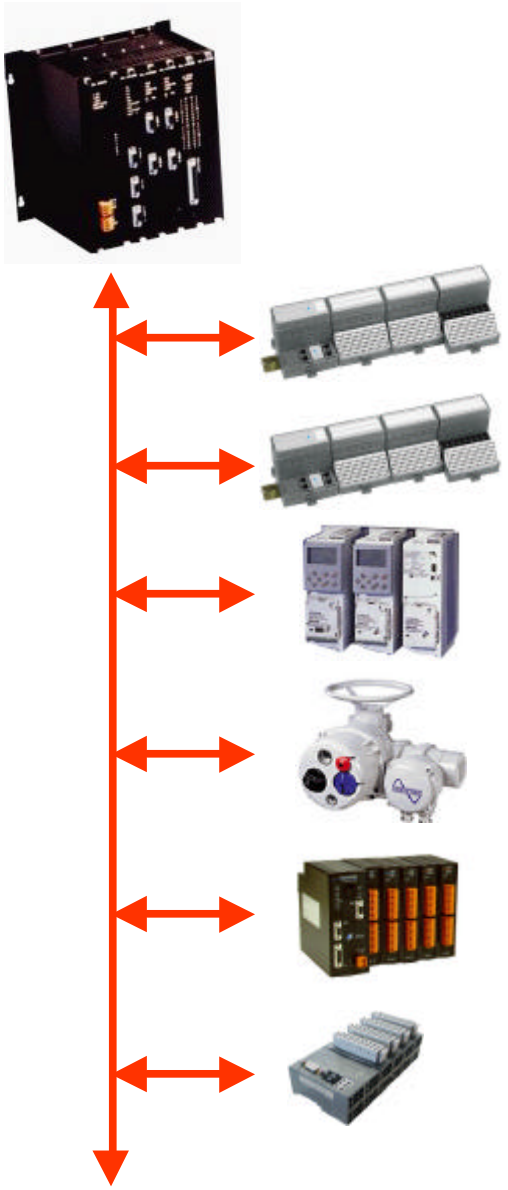
Local I/O Architecture

- Local I/O connected to buses 0 to 9:



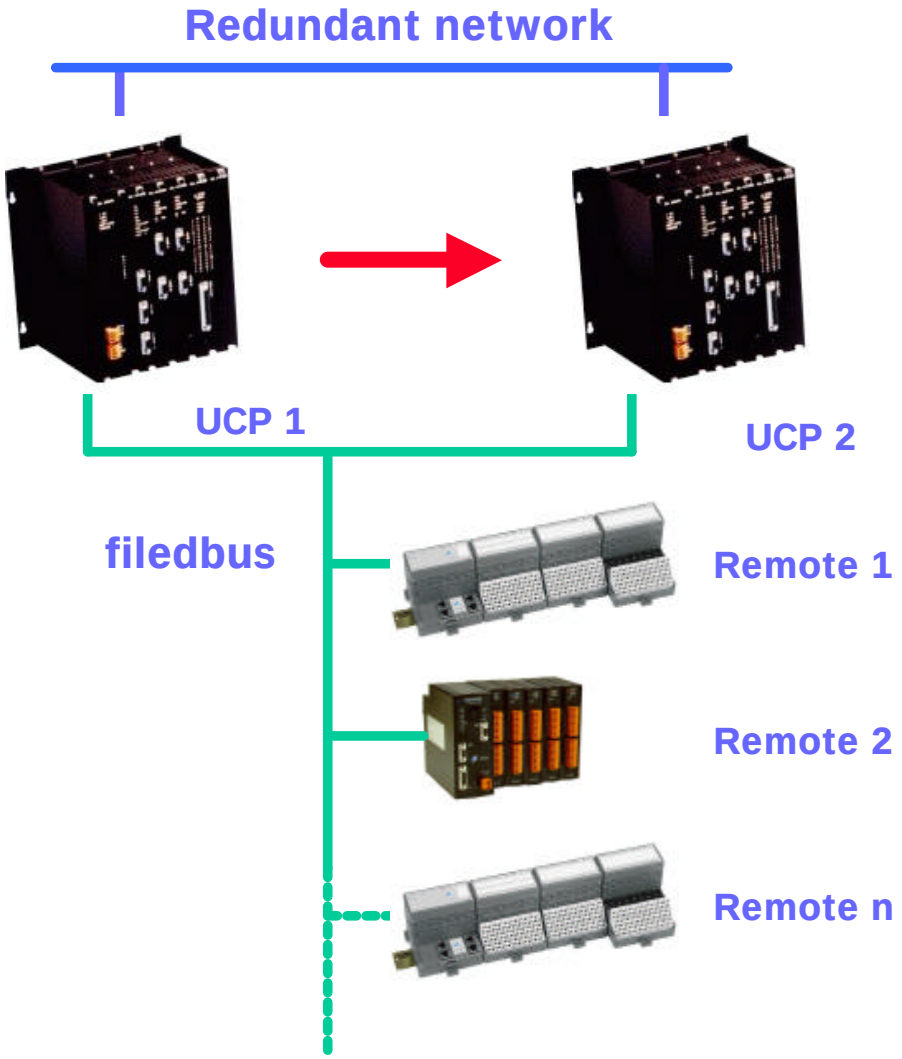
PROFIBUS-DP Architecture

- Worldwide fieldbus network
- Connectivity for equipments by different manufacturers
- Long distances connections
- High speed, upto 12 Mb
- Redundant optic connections
- Aloes 125 remotes for a PROFIBUS-DP network
- 244 input bytes and 244 output bytes of remote points



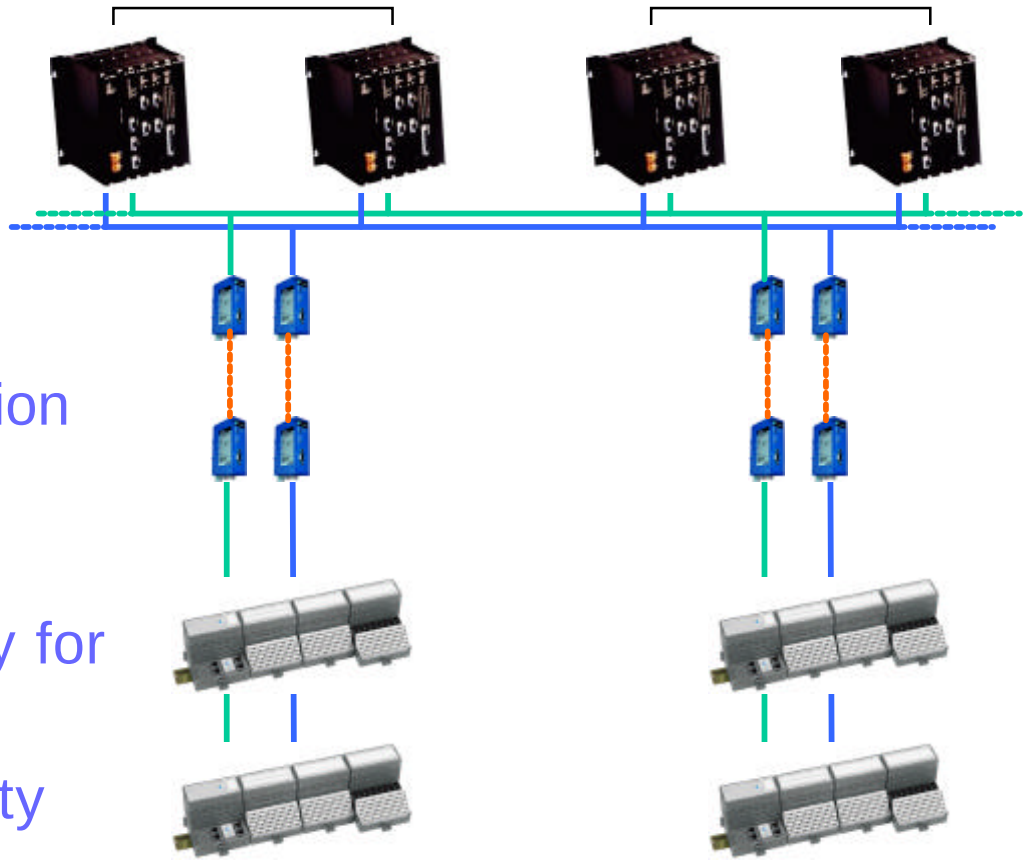
Redundant CPUs

- PROFIBUS-DP - AL-3406 interface
- AL-2017 processor for automatic transfer of variables
- Aloes coprocessors redundancy
- CPUs on-line switchover

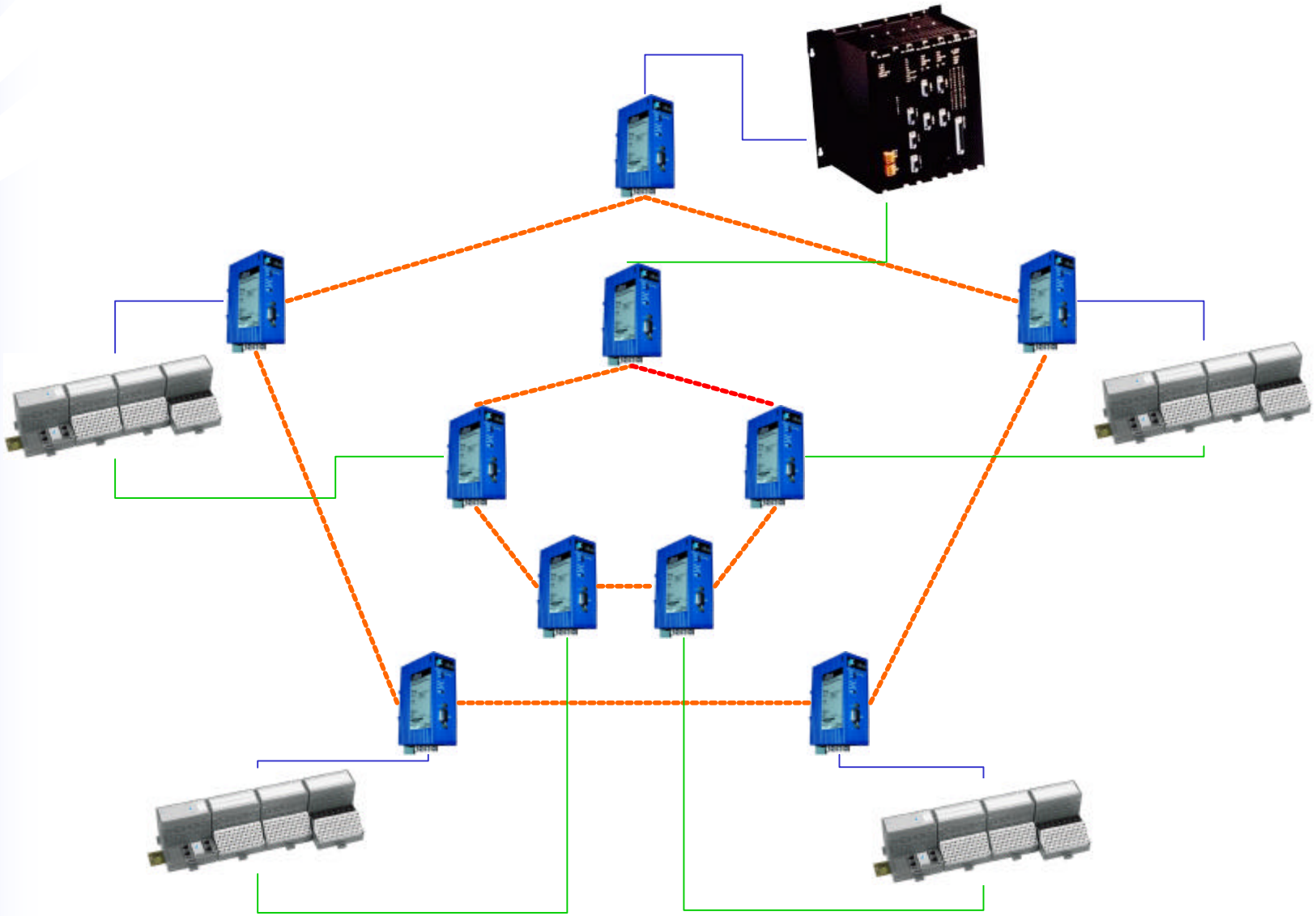


PROFIBUS-DP Redundancy

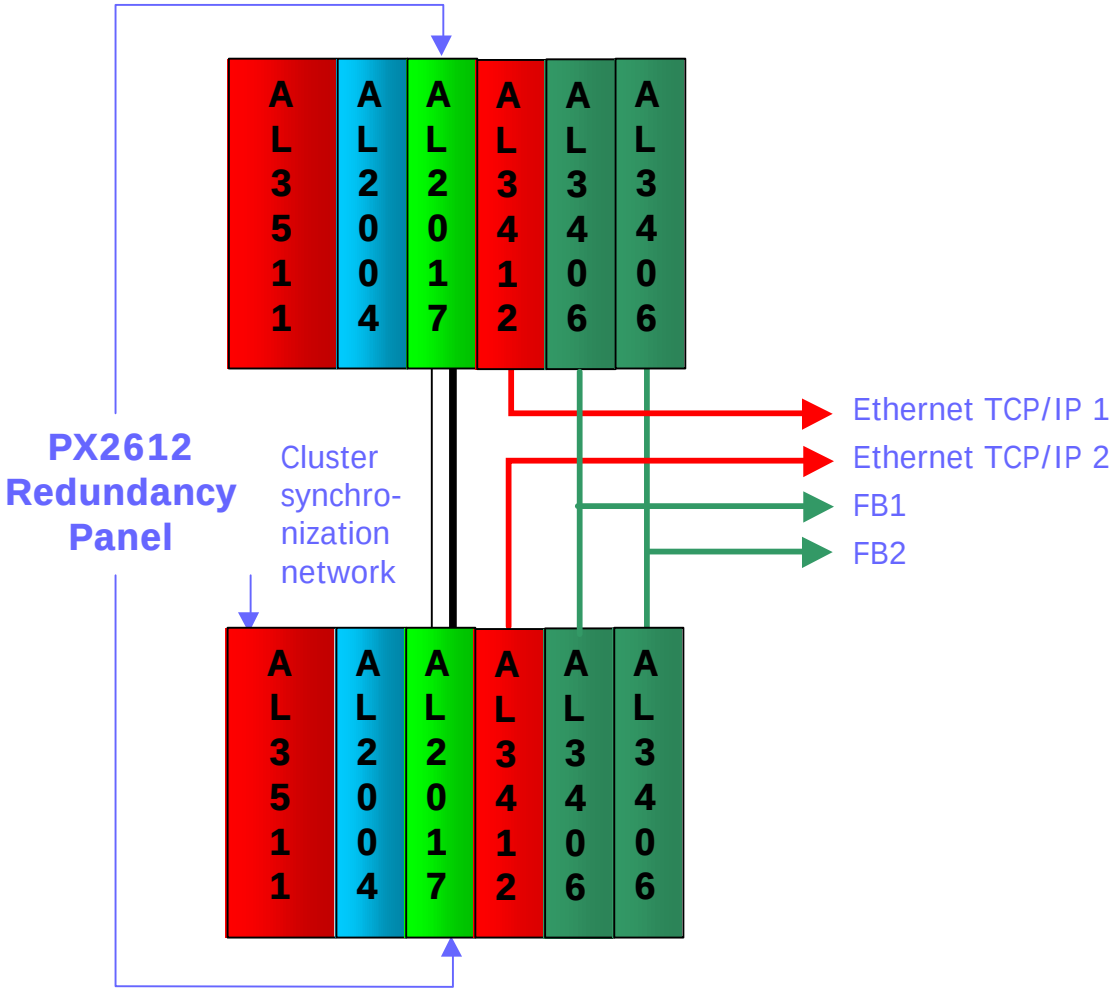
- Redundant CPUS
- Redundant PROFIBUS-DP network
- Redundant PROFIBUS-DP remotes
- Electric/optic communication
- Integration with non redundant devices
- Bus or Ring topology (only for optic communication)
- High processing avaolability
- High processing relayability



PROFIBUS-DP Redundancy



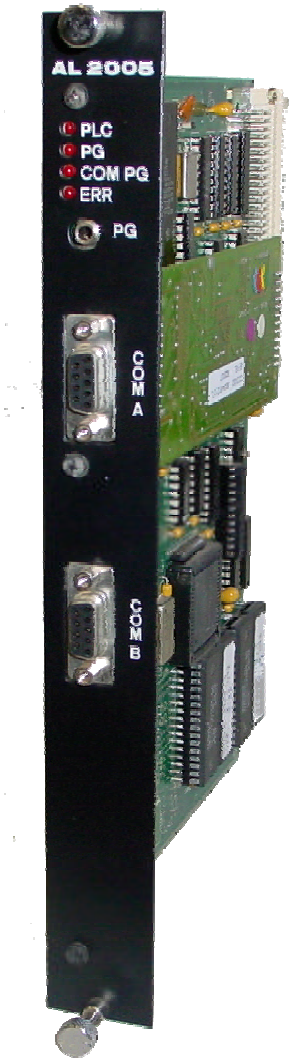
PROFIBUS-DP Redundancy



AL-2005 / AL-2010

- **AL-2005**
  - Module with a RTMP coprocessor
  - Two channels for each AL-2010/RTMP
  - High performancedue to its parallel processing
  - Flash memory for applications: 256 Kbytes
  - RAM memory: 256 Kbytes

- **AL-2010**
  - Real-Time Multitasking Processor
  - Module with two RTMP coprocessors
  - Four channels for each AL-2010/RTMP



AL-2005

AL-2005 / AL-2010

- Enables functions such us:
  - Communications with other equipments using different protocols
  - MODBUS, ALNET I, networks
  - Complex control functions (for example: PIDs, gas flow measurement)

Redundancy Coprocessor

- **AL-2017**

- Redundancy Coprocessor
- Possible to synchronize all the operands memory (up to 48 Kb)
- Automatic Switchover
- Connection to remote I/O using single or redundant PROFIBUS-DP
- Fail detection coverage
- Detailed diagnostics of coprocessor communication channels and remote I/O system
- Embedded event log

AL-2017

Ethernet Interface

- **AL-3412**

- Ethernet 10/100 Mbits/s
- ALNET II Protocol over TCP/IP
- Master, through LTR and ECR instructions
- Slave of other CPUs or Supervisory Software
- Baud rate auto detection
- Diagnostics by LEDs or software
- Multimaster communication with PCs for control

AL-3412

Ethernet Interface

- **AL-3414**

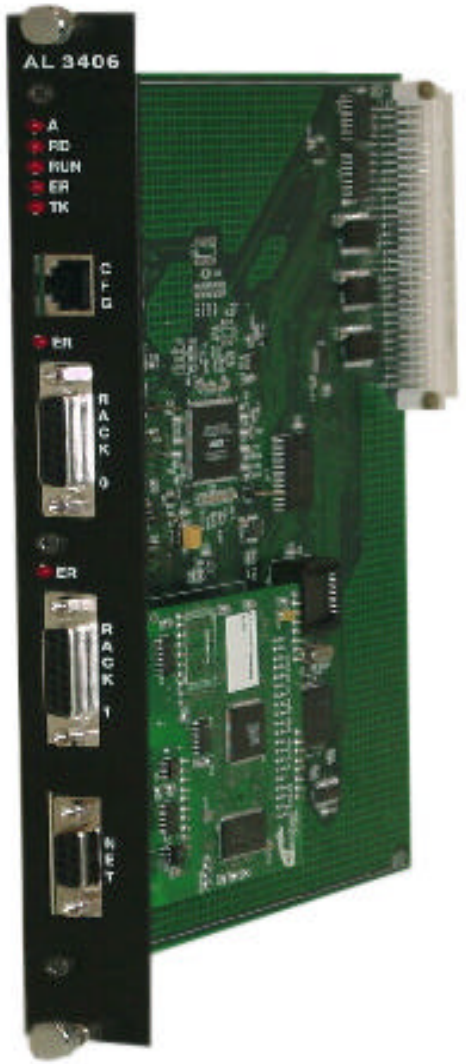
- MODBUS TCP/IP Redundant Ethernet Interface
- Multimaster communication with PCs for control
- MODBUS TCP/IP and/or ALNET II over TCP/IP
- Simultaneous communication in client and server modes
- Redundant communication using just one IP address

AL-3414

PROFIBUS-DP Interface

- **AL-3406**

- Alows two interfaces for redundant architectures
- Redundant configuration, on line expansion
- Complete PROFIBUS-DP network diagnostics
- Upto 12 Mbaud of network communication speed
- Capacity of 3584 input bytes and 3584 output bytes



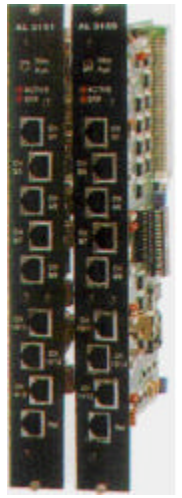
AL-3406

AL-2000 Series I/O

- **AL-3130**
  - May be used with Hádron RTU, PLCs or Remotes
  - Simple or time stamp input modules
  - Hot swap
- **AL-3150**
  - 16 isolated analog input points with 16 bits resolution (I and/or V)
  - Each input is configurated independently
- **AL-3202**
  - 32 relay digital autput points
  - CBO (check before operate)

AL-3130

AL-3202

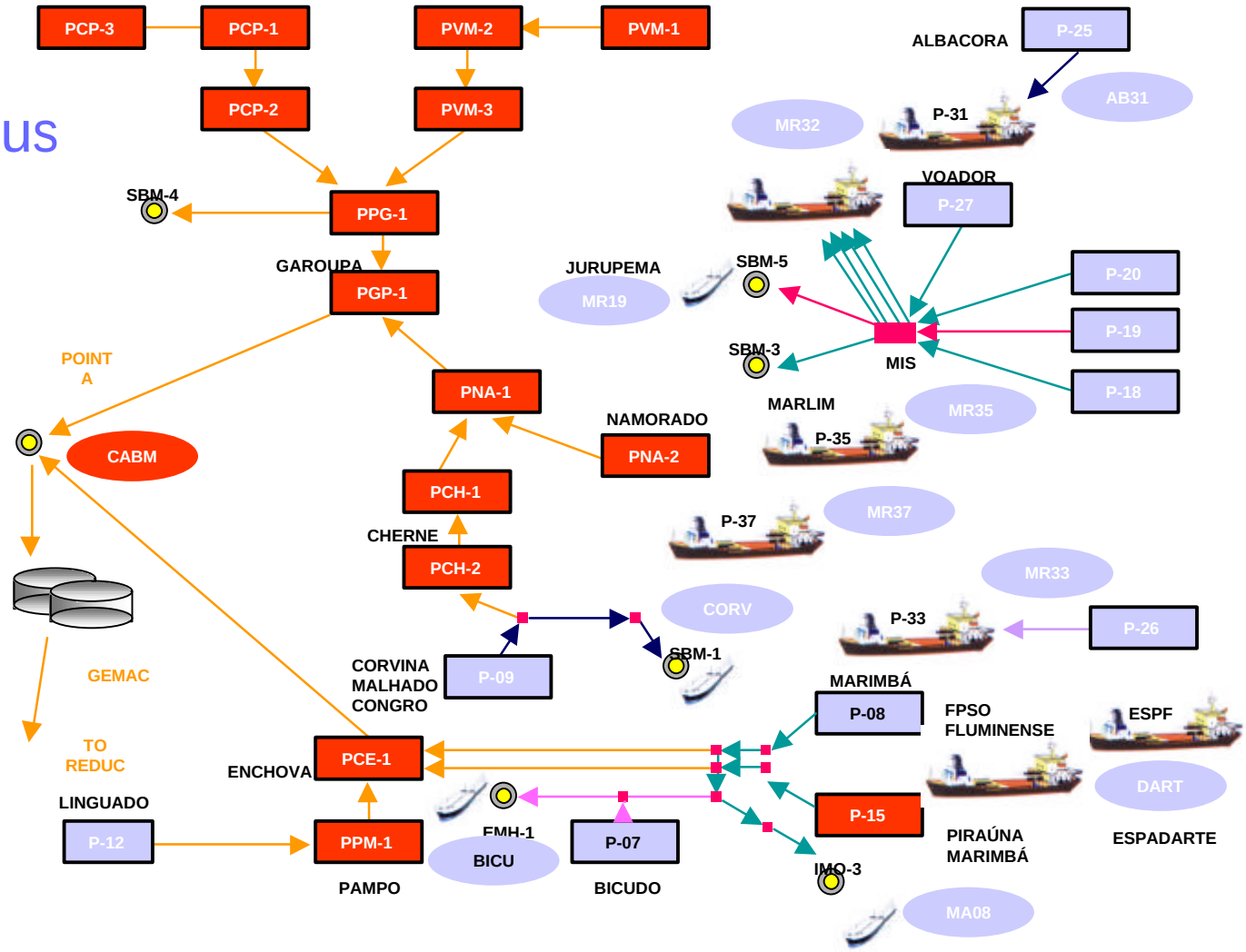


AL-3150

Bacia de Campos - RJ

- Site reponsible for 80% of Brasil´s Oil&Gas production

- Control Altus
  - Oil 30%
  - Gas 95%



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