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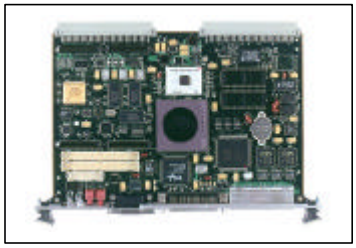
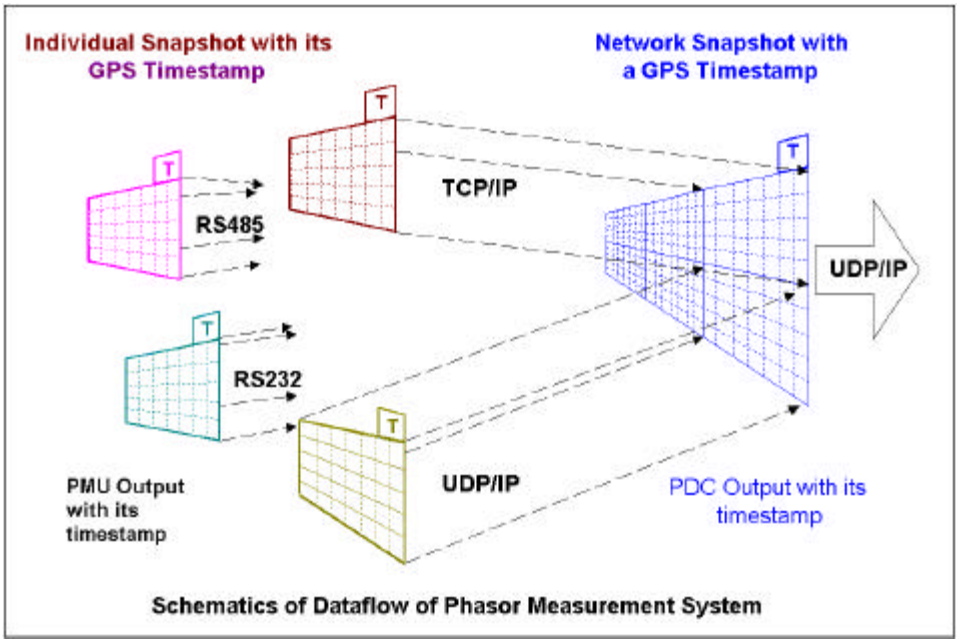
Wide Area Measurement System (WAMS)

WAMS is basic component of the Wide Area Protection/Emergency Control based on distributed installed, GPS-synchronized phasor measurement units. WAMS solution provided is field-proven in Bonneville of Power Administration of WSCC and accomplishes the following functions.

PHASOR MEASUREMENT ACQUISITION



- **Collect all the phasor measurement from different phasor measurement sites**
- **Synchronize all the phasor measurements from different sources**
- **Package all the phasor measurements from all the phasor measurement as snapshot of the power network with timestamp and send to the advanced applications**
- **Remotely set up the phasor measurement units**
- **Support protocols like IEEE 1433, P1597 via serial or Ethernet**
- **Guarantee the minimum less than 5 ms delay with multiple CPUs and RTOS support**



Schematics of Dataflow of Phasor Measurement System

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Real-time Dynamics Monitoring

- Provide real-time dynamics displays of phasors, power, etc.
- Provide alarming/alert

Dynamic Disturbance Recordings & Data Logging

- Generate system-wide dynamic disturbance recordings
- Log the system dynamic behavior accordingly.

Power System Dynamics Analysis

- Data filtering
- Time/frequency-domain response analysis including:
- Modal/pony analysis
- Spectra analysis

Typical Applications

- Wide area protection
- Dynamic transaction limits monitoring
- Dynamics performance monitoring
- Machine model verification
- Damping/oscillation analysis
- FACTS, etc control performance validation