



Taiwan Air Traffic Control Automation System



The Air Traffic Control Automation System (ATCAS) was developed by Lockheed Martin to modernize air traffic control facilities throughout Taiwan. The Lockheed Martin team provided hardware, software and support services to replace the automation equipment at the Taipei Area Control Center, three terminal control centers and three airport towers. Operational in 1996, ATCAS interfaces with both civil and military air traffic control and air defense facilities to provide fully integrated radar, flight data, system control and digital data communications.

Lockheed Martin is currently providing on site hardware and software maintenance and operational support at all four facilities.

System performance/design requirements

The Taipei Flight Information Region is one of the fastest-growing air traffic areas in the world. To handle

current and future needs for automation, ATCAS meets the following requirements:

- Handle 350 active tracks
- Process 1500 active flight plans
- Support 15 radars
- Maintain .99995 system availability

Software architecture

To meet these requirements, the ATCAS advanced software architecture includes the following features:

- Fully integrated radar and flight data processing in the Area Control Center, terminal and tower environments, using software proven in the busiest air traffic control facilities in the world. The software supports:
 - Single and multi-radar tracking
 - Conflict detection and alert
 - Terrain hazard detection and alert
 - Position conformance monitoring and resynchronization
 - Direct route processing
- Display functions incorporating dynamic windowing functions, digital display recording and playback capability, and graphical weather display.
- Adaptable and tailorable software with full system support capabilities, including system analysis recording, data reduction and analysis functions, and complete software and data management facilities.
- System monitoring and control functions, which detect hardware and software errors, and reconfigure

system resources as needed to maintain very high system availability.

Hardware architecture

The hardware architecture similarly was designed to meet demanding system requirements, relying on commercial equipment to reduce risk and cost. These commercially available components provide high reliability and maintainability, lower life-cycle costs and support future upgrades. Other features include:

- A distributed architecture featuring a redundant ISO 8802/5 Token Ring local area network, which allows vertical and horizontal system growth.
- State-of-the-art 20-inch-by-20-inch color raster main displays with 2,000-by-2,000 pixel resolution, and 19-inch, 1,600-by-1,280 color raster auxiliary displays, with high-performance graphics processors.
- A tailorable data communications controller that supports standard interfaces, as well as customer-specific interfaces.

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**Taipei Area Control Center
Automation System**



**Terminal Control Center
Automation System**

