System overview

State-of-the-art technology for ATM

The AirCon 2100 incorporates the most advanced techniques for ATM:

• Open system LAN-based architecture
• Commercial RISC processors
• UNIX operating system
• Standard communication protocols (IEEE-802.3, TCP/IP, UDP/IP)

Full availability and back-up features are provided by the use of:

• Dual redundant servers
• Dual redundant LAN (Local Area Network)
• Distributed Radar Processing located at the working positions
• Proven high performance hardware
• Proven software algorithms, with self-recovery procedures

This results in a system availability > 0.9999

• Color raster displays:
  - Rectangular screen up to 29 inches diagonal
  - High resolution: 1600 x 1280 and 2K pixels
  - Standard graphics: X Window, MOTIF
  - Advanced information languages: COBOL, C++, commercial databases (PostgreSQL) and standard database access languages (SQL, ODBC)

Characteristics:benefits

• Proven system stability and performance
• Reduces technical and schedule risks
• Avoids premature technological obsolescence
• Ensures support longevity at reasonable cost
• Provides cost effective growth path
• Easy integration of Customer Furnished Equipment
• Avoids the need for hardware or software development
• Simplifies maintenance and support activities
• Streamlines system upgrade to satisfy future workload demands
• Provides a highly reliable system
• Reduces system down time by providing redundancy
• Simplifies maintenance
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• Permits midlife technology insertion without redesign
• New functionality can be added cost effectively
• Reduces the final cost of the overall system life cycle

Open system architecture by complying with open system standards (UNIX, Ethernet ...)

Use of COTS technology from industry leaders

Scalable design that allows future growth

All mission critical servers are redundant with proven switchover strategy

Designed to allow retrofitting upgraded control tower environments

Situation Data Display (SDD)
The innovative use of the state-of-the-art equipment are met by the AirCon 2100 by traffic safety and high reliability of the technology.

The mission of the AirCon 2100 is to:

- PIP navigation window to display pictures, maps...
- Inter-centers coordination (OLDI, AIDC)
- Management of the communication with the external world, storing aircraft, trajectories, ... in the common internal format.
- Save/Restore of user preferences
- Support of controllers actions (clearances, equipment switchovers)
- Management of messages from/to the SDP servers (by-pass mode)
- Recording of radar, FP and ADF data as well as CWP status of all SDDs
- Minimum altitude zones
- Sectors
- Configuration of airports with its runways
- Definition of airways, SID & ST AR procedures
- Setting of radar parameters (elevation, beamwidth, scan speed,etc.)
- Definition of the database with data base management

on this goal the simulation subsystem includes a replicated from the operational system, software technic of the operational system and operational system backup. To achieve this the simulation system is configured for running the different control positions and procedures as well as control tools to fulfill the training exercises, configurable for every application.
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**Status and evolution**

Open system architecture by complying with open system standards (UNIX, Ethernet...)

- Based on a legacy of successfully delivered systems around the world
- Use of COTS technology from industry leaders
- Scalable design that allows future growth
- All mission critical servers are redundant with proven switchover strategy
- Designed to allow evolving to support current and future requirements

**Situation Data Display (SDD)**
The AirCon 2100 provides a full-cost COTS solution to ATM control automation system implementation. Being the safety and reliability the primary concern for controller’s equipment, the AirCon 2100 is a reliable solution for any ATM-control center. The integrated design of the AirCon 2100 system is based on advanced software architecture and a modular design to provide a reliable and cost-effective ATM automation solution. The modular design of the AirCon 2100 system allows for easy upgrade and expansion to meet future needs. The system is designed to meet the requirements of the current and future ATM automation systems.
**AIR TRAFFIC CONTROL AUTOMATION SYSTEM**

**Systems components**

- **Flight Data Processing (FDP)**
  - Real-time processing and control of traffic flow.
  - Distribution of traffic data to external systems.
  - Collection and processing of traffic data from various sources.
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- **Surveillance Data Processing (SDP)**
  - Real-time processing and control of traffic flow.
  - Distribution of traffic data to external systems.
  - Collection and processing of traffic data from various sources.
  - Distribution of traffic data to external systems.

**System functions**

- **Identification and Flight Data Display (IDFDD)**
  - Display of system status and selection of flight plans.
  - Display of weather data to controllers.
  - Monitoring of flight plans and traffic data.
  - Distribution of traffic data to external systems.

- **Data Base Management (DBM)**
  - Management of data base.
  - Distribution of traffic data to external systems.
  - Collection and processing of traffic data from various sources.
  - Distribution of traffic data to external systems.

**Software components**

- **Vigilant Waypoint (VW)**
  - Real-time processing and control of traffic flow.
  - Distribution of traffic data to external systems.
  - Collection and processing of traffic data from various sources.
  - Distribution of traffic data to external systems.

**Data Link Server (DLS)**

- **Display of AIP documents**
- **Access to MET/AIS databases**
- **Autonomous monoradar tracking in case of failure**
- **Display of traffic lists (flow planning)**
- **Transmission of AFTN messages**

**Air Traffic Management (ATM)**

- **Management of flight plans**
- **Data Link to FPL**
- **Flight data acquisition**
- **Data Link to FPL**
- **Management of NOTAMS**

**Simulation Subsystem**

- **Based on commercial databases and standards**
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**Introduction**

The AirCon 2100 offers one of the most advanced solutions to provide a fully-automated traffic control system that meets the requirements of the European Civil Aviation Authorities (ECAC) and the International Civil Aviation Organization (ICAO) standards. The AirCon 2100 represents the best tradeoff for ATM systems which meets International Civil Aviation Organization (ICAO) standards and systems ranging from highly competitive COTS solution to full performance semi-custom systems.

**Being the safety and reliability the top priority, the AirCon 2100 provides the following features:**

- **Hazardous terrain identification**
- **System reliability**
- **System redundancy**
- **System failure detection**

The main components of the AirCon 2100 are...

Index control word position
AIR TRAFFIC MANAGEMENT

AIR TRAFFIC CONTROL AUTOMATION SYSTEM

Supplying ATM systems around the world for more than 30 years

indracompany.com

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Characteristics

Based on a legacy of successfully delivered systems around the world:

• Proven system stability and performance
• Proven technical and maintenance strategy

Open system architecture by complying with open system standards (UNIX, Ethernet...)

• Avoids proprietary technology and obsolescence
• Facilitates support by using commercial codes
• Facilitates cost-effective growth paths
• Easy integration of future enhanced equipment

Use of COTS technology from industry leaders:

• Avoids the need for bespoke software development
• Simplifies maintenance and support activities

Survivable design that allows future growth:

• Survivable system upgrade to satisfy future workload demands

All mission critical servers are redundant with proven switchover strategy

• Provides a highly reliable system
• Reduces system downtime by providing redundancy
• Simplifies maintenance

Modular SW and HW design

• Simplifies maintenance and logistic activities

Designed to allow continuous capability and future enhancements

• Nests easily into technology newer or lower bandwidth standards
• Provides hands-on or derivative re-implementation
• Reduces the risk of the overall system life cycle

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