

## Products: **Guardian**

Raytheon's Guardian ATC automation system incorporates Raytheon's extensive ATC experience, commitment to international standards, innovative use of state-of-the-art technology and, above all, the recognition of safety as the most important design criteria.

The evolution of the Guardian system can be seen through the delivered programs that contributed to the overall design and detailed capabilities. Guardian is now fully operational in three countries: People's Republic of China, Indonesia and Saudi Arabia.

Raytheon's latest version of Guardian, is an advanced, fully-integrated, open architecture ATC system, which can be easily configured for en-route control (from small to large area control centres), terminal arrival/departure control and/or tower control. Today, the Guardian system offers a modern automated air traffic control system that meets International Civil Aviation Organization (ICAO) standards. By using commercial hardware products and existing software products, Raytheon provides a modern and proven system solution that is cost-effective from an overall life cycle standpoint. Controller display workstations are designed with accuracy and human factors as primary design features. The latest high-resolution colour raster-scan technology, combined with Raytheon's display management software, provides large, bright and simple-to-operate displays.

The functionality provided in the Guardian system includes a fully integrated Radar Data Processor (RDP) and Flight Data Processor (FDP). These main processors provide the data to the workstation software to provide the ATC and support positions with the proper data for performance of their duties. Based on one of the most reliable and proven tracker technologies in use throughout the world, a full range of standard features is offered with the Guardian system. These include a variable update multi-radar tracker, potential and actual short-term conflict alerts (STCA), restricted airspace intrusions (RAI) and minimum safe altitude warnings (MSAW) that result in flexible, accurate, and timely presentation of radar data to air traffic controllers. Other functions, such as radar processing bypass and radar weather, are also available.

Flight Data Processing (FDP) is the cornerstone of the Guardian Air Traffic Management System. FDP provides the hub for flight data flow, regardless of origin. The system processes flight data to and from multiple sources, in ICAO and other formats. This data can be transmitted over the Aeronautical Fixed Telecommunications Network (AFTN), or other digital data links. The system automatically distributes flight data to external facilities.

In addition to the traditional route conversion and trajectory estimation, the Guardian FDP includes flight conformance monitoring, ADS processing, flight plan tracking, full aeronautical and meteorological data processing and display, and an integrated simulation and training capability.

Guardian is designed to meet the needs of all ATC customers, both large and small. Raytheon is able to update and enhance the current functions by virtue of Guardian's open architecture. Such planned extensions include a growth path for increased CNS/ATM capabilities. In addition, Guardian's RDP is currently being enhanced and integrated into Raytheon's Military Advanced Air Traffic System (MAATS) program being developed for the Canadian Department of National Defence. -