

THE ULISS FAMILY

Inertial Navigation and
Inertial Navigation/Attack systems

FUNCTIONAL INTEGRATION

NAVIGATION

- FLEXIBILITY
- FUNCTIONAL RELIABILITY
- PERFORMANCE TO COST RATIO

MISSION FLEXIBILITY

The ULISS family of systems was designed to account for a wide range of airborne functional requirements. It not only satisfies the standard Inertial Navigation System specification but may be configured to perform the mission specific tasks of any type of military aircraft. This design approach has proved quite successful and is now backed by over one thousand of systems in operation in Navigation as well as Navigation/Attack roles.



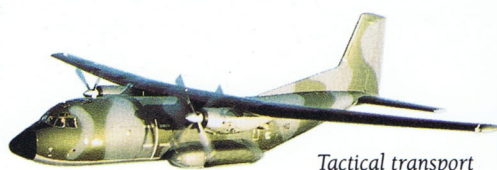
Air defence



Penetration



Maritime patrol



Tactical transport

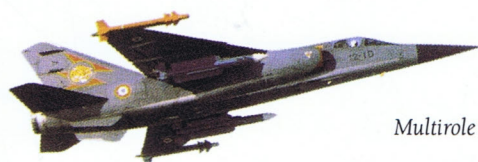


Helicopter

NAVIGATION/ATTACK



Ground attack



Multirole



Light attack



Carrier based



Advanced trainer

FUNCTIONAL RELIABILITY

Integrated into dozens of different airborne weapon systems, members of the ULISS family of systems may achieve:

- High accuracy self contained navigation,
- Hybrid inertial/GPS/Terrain Reference Navigation,
- Weapon fire control (smart/standard weapons),
- Stand-off weapon initialization.

Within the same physical packaging, thus offering very good functional reliability, and excellent

“PERFORMANCE TO COST RATIO”.

TECHNOLOGY

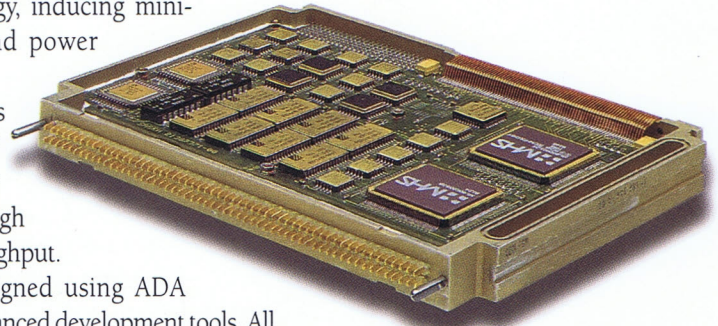
ADVANCED MATURE TECHNOLOGY

ULISS is a good example of implementation of advanced, yet mature technologies satisfying the most stringent requirement. Highly accurate and reliable miniature inertial sensors made possible the design of a very compact though easily maintainable platform assembly, thanks to its cantilevered construction.

Along with this very compact platform, the electronics implement the latest LSI and hybrid technology, inducing minimum weight and power consumption.

ULISS processor is based on "RISC" technology allowing very high computing throughput.

Software is designed using ADA language and advanced development tools. All this ranks ULISS among the most compact high performance inertial systems ever made.



Computerized dynamic validation bench used to qualify the operational flight program.



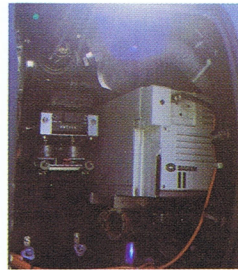
LOGISTIC SUPPORT

LOGISTIC SUPPORT EXPERIENCE

Logistic support of INS has always required careful attention. Thanks to the experience of operating and maintaining large numbers of systems in many different configurations, SAGEM has defined the most adequate user's procedure for operation and performance monitoring along with a comprehensive test environment. Such test environment is compatible with the most widely accepted test standards (hardware and software). It may include portable "off line" testers performing basic test/calibration and trouble-shooting. In addition professional multilingual training will bring up operator's personnel to the required qualification level.

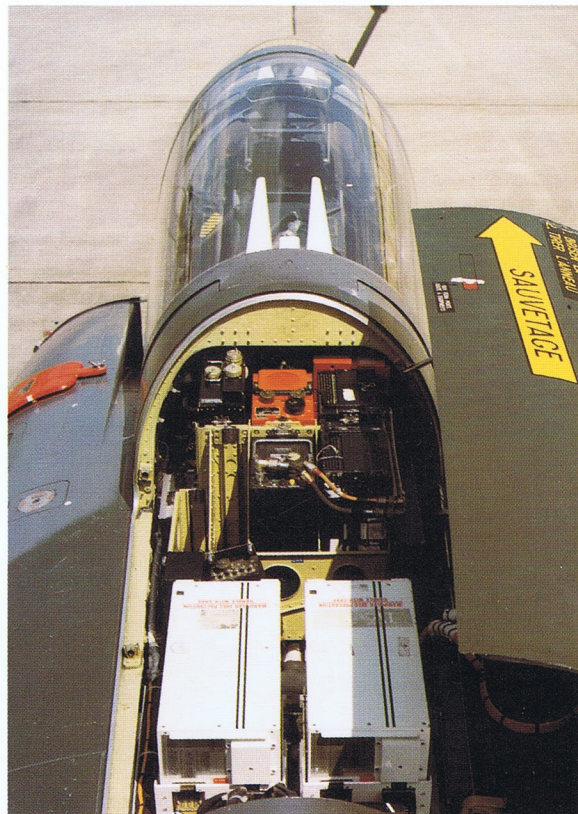


Electronic trouble-shooting on automatic tester.



SOFTWARE SUPPORT

In advanced integrated Navigation/Weapon Systems, the ULISS system may play a significant functional role which translates into the required operational software. SAGEM has developed a comprehensive software support environment (including ADA programming) based on state-of-the-art computer with stations.



THE ULISS FAMILY

- MODULAR ARCHITECTURE
- AVIONICS UPGRADES

The ULISS family of modular multifunction inertial systems offers a genuine functional modularity both at hardware and software levels. This modular approach is well adapted for avionics upgrades since it provides:

- easy adaptation to specific requirement,
- “pre-planned product improvement” on a module to module basis,
- cost effectiveness as the core modules of the systems are common to most applications, thus ensuring longer production runs.

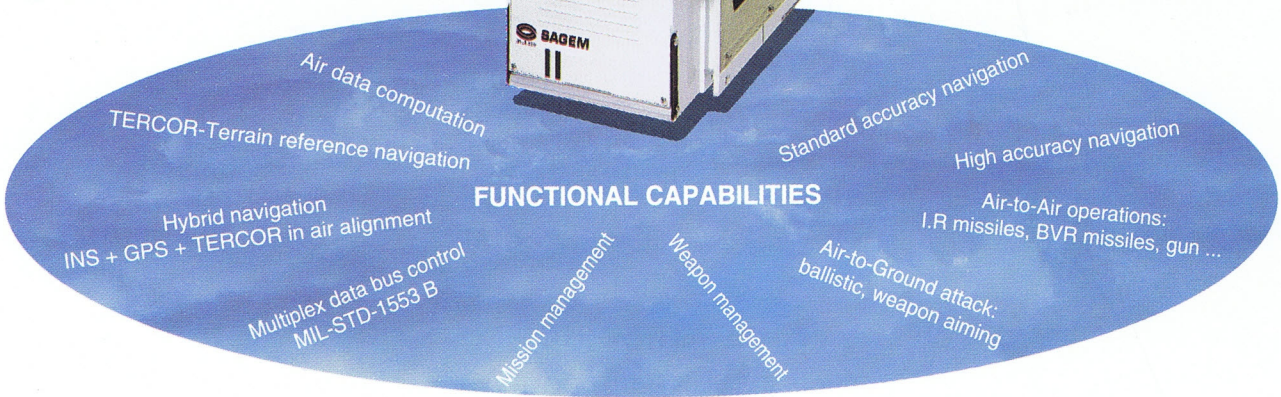
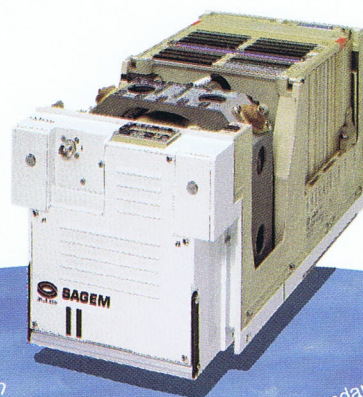
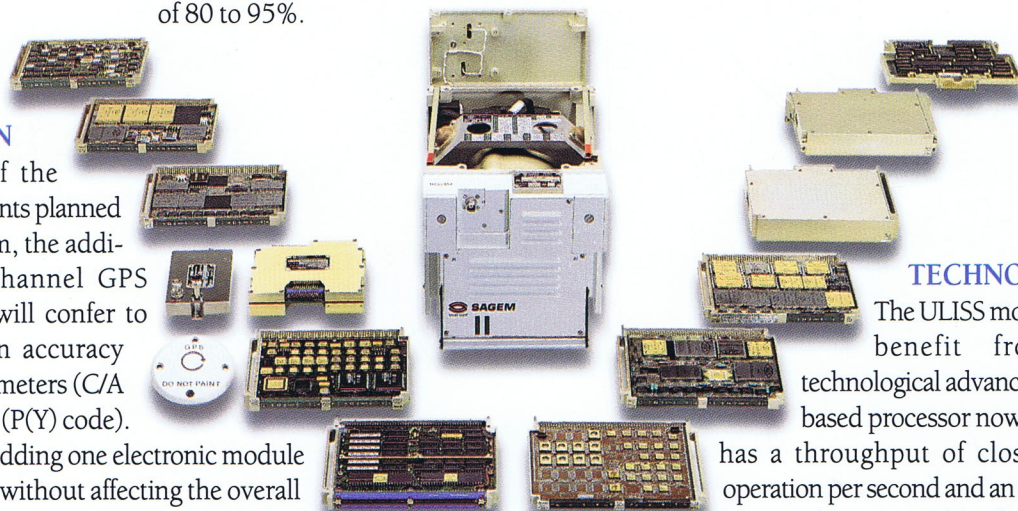
From one application to another, module commonality is of the order of 80 to 95%.

GPS NAVIGATION

Along the lines of the modular improvements planned for the ULISS system, the addition of a multi channel GPS receiver-processor will confer to ULISS a navigation accuracy down to a hundred meters (C/A code) or even better (P(Y) code). This is achieved by adding one electronic module and one RF module without affecting the overall fit of the system. This add-on GPS capability can also be retrofitted to existing ULISS systems in operation.

TECHNOLOGY UPDATE

The ULISS modules continuously benefit from the latest technological advances. The digital RISC based processor now included in ULISS has a throughput of close to 15 millions operation per second and an addressing capability of several Mega word (16 bits) putting it at par with the most powerful mission computers in production.



Reaction time	Stored Heading 1.5 mn Gyrocompass 8 mn
Mode capability	<ul style="list-style-type: none"> • Navigation: Standard + hybrid • Multiplex bus control: Primary + reversionary • "TERCOR" Terrain Reference Navigation • Weapon aiming management • GPS C/A and P(Y) code
Performance	Position < 1 NM/h CEP Velocity 1 m/s RMS Roll pitch 3' 1 σ Heading 6' 1 σ
Outputs	ARINC 429 Digibus MIL-STD-1553 B Analog + discrete
Power supply	115 V, 400 Hz, 3 phases 220 VA
Dimensions	191 x 194 x 386 mm
Weight	15 kg
Environmental	MIL STD 810 MIL STD 461-462

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