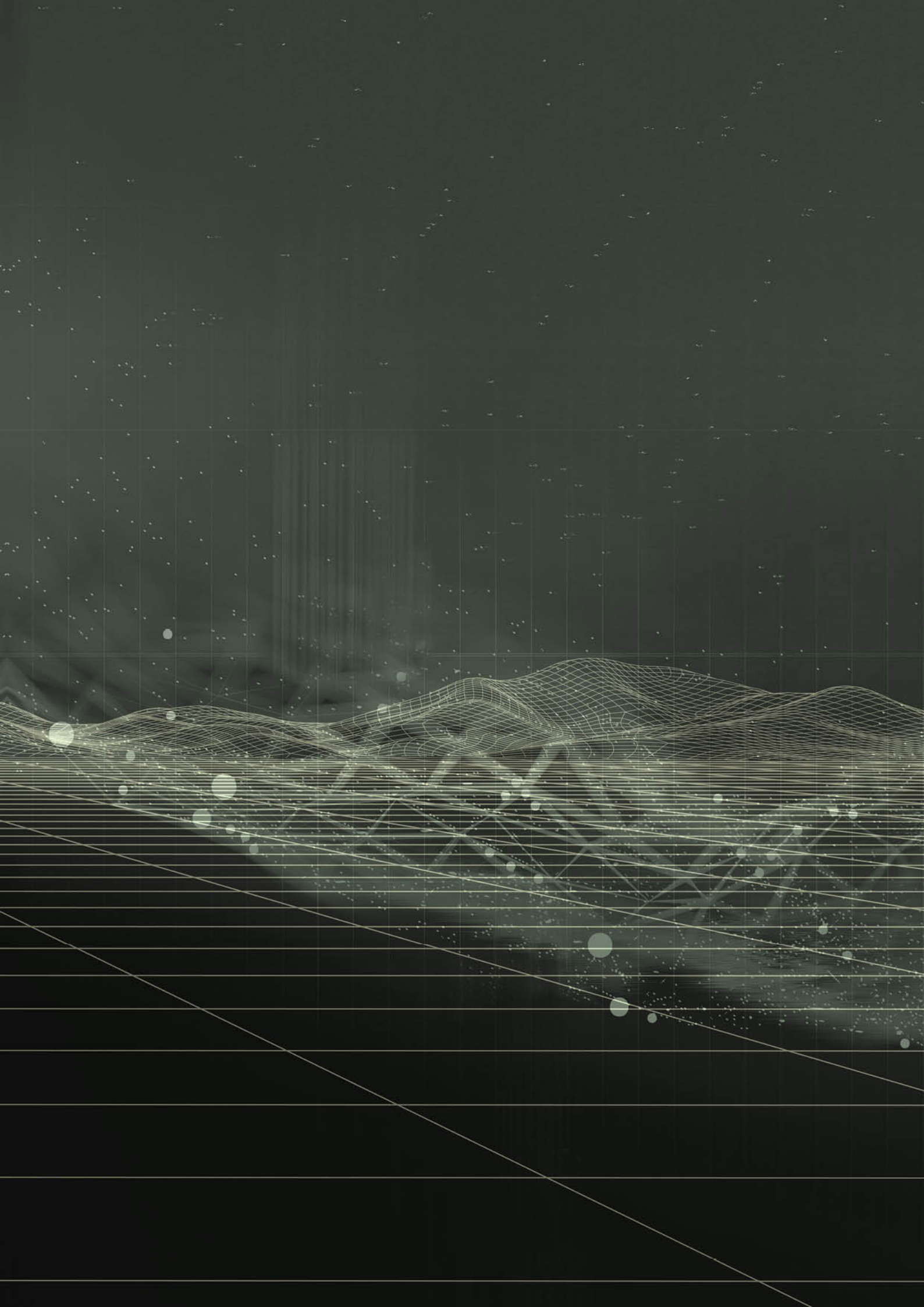
MILITARY AVIATION

STM



STM Savunma Teknolojileri, Mühendislik ve Ticaret A.Ş.

STM was established in 1991 for the provision of project management, system engineering and consultancy services to the Defense Industry Agency (SSB) and the Turkish Armed Forces (TAF).

The SSB continues to be the majority shareholder in the company, which has a workforce of 850 people, 63 percent of whom are engineers.

STM is among the leading companies operating in the defense sector, and is engaged in projects, particularly in the fields of naval platforms, tactical mini UAV systems, cybersecurity and IT services, command and control projects, satellite technologies, military aviation, radar and electronic warfare, and procurement and consultancy services.

Aside from its involvement in many national projects being conducted by the Turkish defence sector, STM is also engaged in export and business development activities for NATO with operations in more than 30 countries.

In addition to acting as the main subcontractor in the MiLGEM Project for the development of Türkiye's first national corvette, STM is also carrying out the detailed design as the main contractor in the project for the construction of TCG İSTANBUL (F-515), Türkiye's first national frigate.

STM has undertaken important tasks in submarine modernization and construction projects for the Turkish Navy, and is also responsible for Türkiye's first submarine modernization export, taking the lead role in the Pakistan AGOSTA 90B project.

STM developed KARGU, Türkiye's first indigenous attack UAV System, and launched Türkiye's first Cyber Fusion Center in 2016.

Through the INTEL-FS2 Project, STM ensures the flow of intelligence between all NATO headquarters around the world, and is successfully engaged in one of Türkiye's largest software exports to the Organization.

STM diversifies its technology-based activities to meet the needs of the public and private sectors – in particular those related to the Turkish defense sector.

STM is headquartered in Ankara, the capital of Türkiye, and continues its operations out of nine facilities, located in İstanbul, Gölcük and Ankara, as well as Pakistan.

STM was for three consecutive years listed on the Defense News Top 100 list of the world's top 100 defense companies.

FOCUSFLITE AS

Airborne Digital Moving Map System

FocusFlite AS (Airborne Segment) is a moving-map based cyber-physical system used to increase the situational awareness of pilots during their missions on aerial platforms. The system's advanced human-computer interface, which was created after several years of usability testing, dynamic content management and simplified user interface studies, maximizes effective use.

Thanks to its field proven capabilities and its customizable plugin architecture, FocusFlite AS is an ideal option for providing just in time, flexible and trustworthy solutions.

Whether your mission is to transfer equipment or personnel, or securing the homeland, FocusFlite systems supports you during navigation and tactical operations, by providing the essential information via multi modal interfaces.

TACTICAL CAPABILITIES

- Display of obstacle, intelligence photos, threats, MIL-STD-2525B tactical drawing and military symbology, MAYDAY, location and situation report, observation report and close air support messages
- Weapon coverage, sensor data displays
- Flight plan and pattern demonstration
- Tactical approach, flight messages, personnel locating systems (PLS), emergency checklist, off-the-route point and marked point
- Integrated with TerraFlite (can work in non-GNSS environments)
- Navigation and tactical military operations, patrol, civil aviation

SITUATIONAL AWARENESS CAPABILITIES

- Vertical - Cross Section (VCS)
- Height Above Terrain (HAT)
- Line of Sight (LOS)
- Threat and Target Sight Unit
- Audible and visual obstacle, terrain, border and NOTAM warnings
- HTAWS (Helicopter Terrain Awareness and Warning System) (DO-309/TSO C194 compliant and configurable.)

PRODUCT FAMILY VARIANTS

- **FocusFlite AS High Performance Edition:** It addresses high resolution, high refresh rate and high data display requirements on Windows/Linux RT (Real Time) platforms on powerful hardware.
- **FocusFlite AS Safety Critical Edition:** It has been developed in compliance with DO-178B and OpenGL Sc restrictions to meet safety critical requirements. It is ready for DO-178B DAL C level certification and is supported by Greenhills INTEGRITY-178B RTOS as operating system.
- **FocusFlite Mobile Edition:** It is designed for use on Windows/Linux platform tablets with touch screen.

DATA INTERFACES AND HARDWARE DESCRIPTIONS

- MIL- STD- 1553, ARINC 429, Ethernet, RS232
- COTS central and graphics processor units
- OPEN GL SC and GL 3.X support

FIELDED PLATFORMS

- Attack Helicopters (Turkish Armed Forces ATAK Program (T129))
- Utility Helicopters (S70, Mi-17, UH-1H)

GENERAL CAPABILITIES

- 2D moving map and 3D synthetic vision display modes
- True/Magnetic “North-up”, “Head-up” and “Track-up” map orientation modes
- Vector layers and map overlays (user-defined points, buffer zones, country borders, territorial water borders, ACMAP/IAP/ADC, POI)
- Information indicators (compass, HUD etc.)
- ARINC 424 and DAFIF navigation database display
- High resolution raster background maps (up to the scale of 1/8K)
- Terrain Elevation Maps
- Various raster and vector map formats
- Navigation and POI search
- Range and bingo circle display
- Multi language support
- UTM, MGRS, geographic coordinate systems and more than 50 datum
- Support for imperial/metric units
- Video recording (FLIR, E/O, MFD)
- Configurable data import and transfer mechanism

COMPATIBLE STANDARDS

- DO-178B
- DO-257A
- MIL-STD-6017A
- ARINC 424
- DAFIF
- MIL-STD-2525B
- MT76-1A

FOCUSFLITE GS

One planning solution for all platforms

FocusFlite GS (Ground Station) helps pilots to review/prepare their mission plans with high precision and accuracy thanks to the 2D/3D planning capabilities it provides for different platforms.

With its extensible and adaptable mission planning infrastructure, platform-specific capabilities such as performance calculations can be easily added.

Intuitive, fast and responsive human-machine interface of the program has been developed, supported by usability tests.

FocusFlite GS capabilities can be used on consoles, workstations stations and portable platforms.

GENERAL CAPABILITIES

- Multi-user planning
- GIS developed in-house
- Virtual globe infrastructure
- Modern menu system with toolbar and tabs, expandable tools and dockable UI components, customizable user interface elements
- Big data processing, dynamic data reduction
- Administrative capabilities (different user roles, user authentication, central&local data and crew management, backup etc.)
- Advanced layer management
- Multi language support, UTM, MGRS and geographical coordinates
- Imperial/metric units of measurement, 50+ datum, mission data transfer capabilities
- Map tools (distance, bearing, area measurement) and map marker
- Map printing capability
- Aircraft mission data preparation (navigation, POI, flight plan, magnetic variation, communication etc.)
- Fully integrated with FocusFlite AS
- Compatible with DO-200 A/B
- Redhat, Debian (Including PARDUS) based Linux operating system support

MISSION PLANNING CAPABILITIES

- Advanced flight planning capabilities (Automatic/Manual IFR, VFR, Cargo and CARP/ HARP planning, flight patterns, navigational information blocks, tactical approaches, take-off / landing procedures (SID, STAR, IAP) and route indicators, terrain following and level flight modes)
- Flight plan analysis and performance calculations (estimated time of arrival, distance, fuel consumption, weight-balance etc.)
- Flight plan reports
- Aircraft/platform configuration, emergency procedures, magnetic variation
- Vertical cross section, terrain, visibility, threat coverage, NOTAM, buffer zone and obstacle analysis
- Communication analysis and planning
- Weapon management

BRIEFING AND DEBRIEFING CAPABILITIES

- 2D, 3D and night vision display modes
- Map orientation modes (North-up/head-up, ground/ aircraft fixed)
- Real-time analysis depiction
- ADI and status display
- Simulation controls
- Playback of flight logs and maintenance data (BIT, WCA Logs, etc.)
- Synchronous playback of multichannel videos with ongoing debriefing on map canvas

DATA AND MAP DISPLAY CAPABILITIES

- 2D map and 3D virtual globe display modes
- ARINC 424 and DAFIF navigation database support (airports, controlled airspaces, passage points, airlines, navigation aids, tactical approaches, SUAS, FIR/UIR, NOTAM)
- Vector layers and raster overlay (user-defined points, buffer zones, country borders, territorial water borders, ACMAP/IAP/ADC, POI)
- Importing user-defined data layers
- High quality background maps (relief, shaded, scanned digital maps for different scales (up to 1/5K), CIB5, CIB10, satellite maps), geographical tile indicators, grid lines
- Tactical data (obstacles, intelligence photos, threats, friend/foo units, tactical drawings, military symbology)
- Supported Raster data formats (ECW, ADRG, CADRG, GeoTIFF, TIFF, Geospot, JPEG2000, CIB, DDS etc.)
- Supported vector data formats (Shape, FileGDB, VMAP, GeospatialPDF, VRT, OpenAir, GMT etc.)
- Terrain elevation databases (DTED – Level 0, 1, 2, 3, 4 and SRTM)
- Meteorological data (METAR, TAF, SPECI, GRIB)

FIELDED PLATFORMS

- Attack Helicopters (Turkish Armed Forces ATAK Program (T129))
- Utility Helicopters (S70, Mi-17, UH-1H)

TERRAFLITE

Terrain Aided Navigation Solution

TerraFlite which is a terrain- aided autonomous navigation solution for airborne platforms in GNSS-denied environments, associates terrain features with basic avionic sensors' data and provides GNSS-equal or more accurate position information. TerraFlite is a patented product of our company.

FEATURES

- Reduced Horizontal and Vertical Error with Increased Platform Position Accuracy
- Increased Situational Awareness with close-to-truePosition-Based Image Production
- More Precise Passive Obstacle Alerts
- Jamming-Resistant Navigation
- GNSS Independent
- High Resolution Terrain Data Usage (DTED Level 4, Level 3, Level 2, Level 1 and Level 0)
- Achieving Target in Non-GNSS/GNSS-Denied Environments
- Use with Digital Map, Obstacle/Terrain Warning and Auto piloting Systems
- Easy Integration Capability with Air Systems
- Fully Integrated with STM FocusFlite AS and FusionFlite Sensor Fusion Engine Solutions
- Enhanced Data Fusion Infrastructure

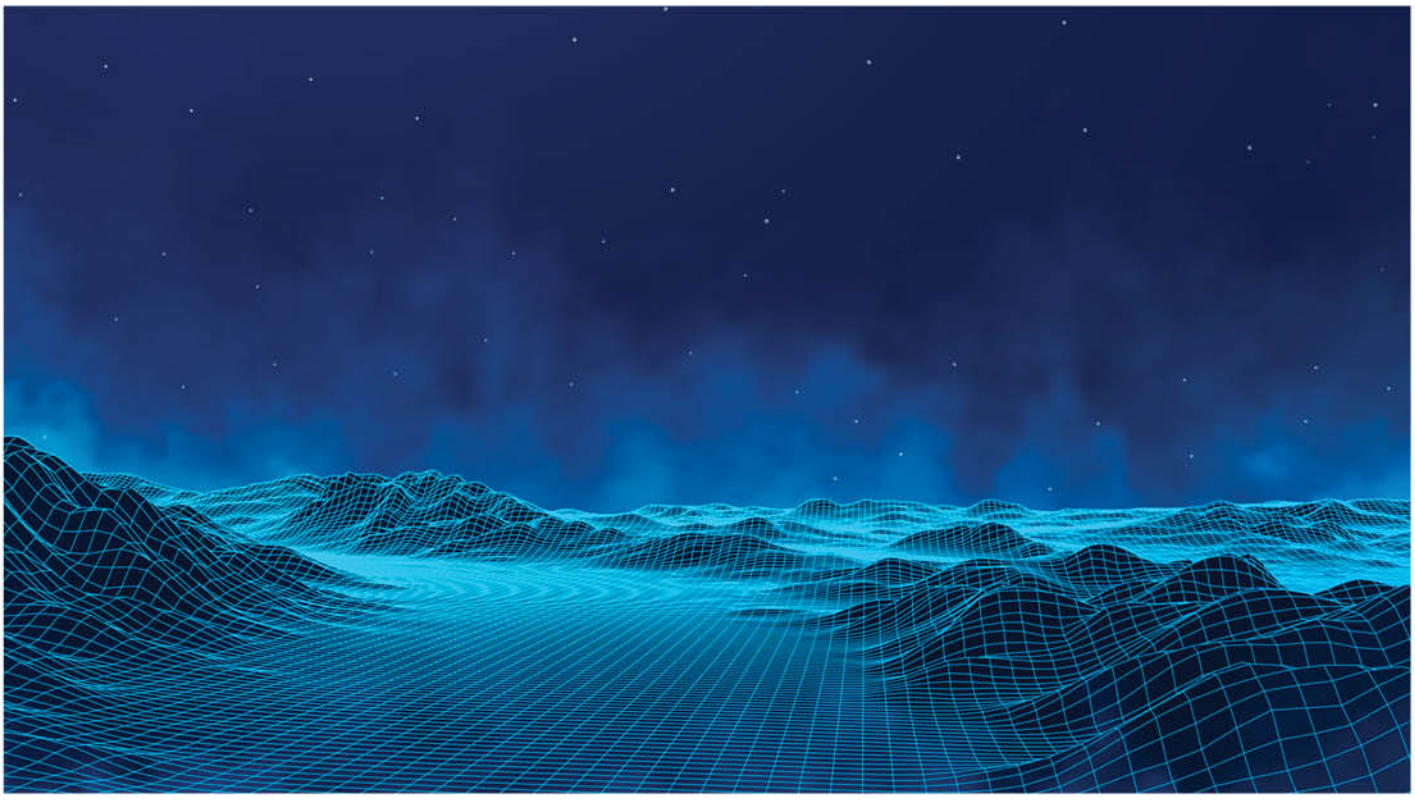
MEDIUM

- COMFORTABLE Processor and GPU support
- Ready for DO-178B Level-C Certification
- MIL- STD - 1553B, ARINC- 429, Ethernet, RS232 Interface Support

PRODUCT FAMILY VARIANTS

- **TerraFlite** High Performance Edition: It provides solutions for GNSS-denied environments that require high performance and in Windows/ Linux RT (real time) platforms on powerful comfortable hardware.

- **TerraFlite** Safety Critical Edition: It has been developed in compliance with DO-178B restrictions to meet safety critical requirements. It is ready for DO-178B DAL C level certification and supports GreenHills INTEGRITY-178B RTOS operating system.



TerraFlite

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