

**EMBARGOED FOR RELEASE ON
1 FEBRUARY 2010 AT 10.00AM (SINGAPORE TIME)**

ST ELECTRONICS LAUNCHES NEW SOLUTIONS @ SINGAPORE AEROSPACE 2010

Singapore, 1 February 2010 – ST Electronics showcases new solutions at the Singapore Airshow 2010 (SA2010). For the first time, ST Electronics is exhibiting its :

- 9m Venus, Unmanned Surface Vehicle (USV)

Other exhibits that visitors will see at SA2010 include :

- USV Simulator
- Virtual Worlds, and,
- Advanced Combat Man System (ACMS)
- Broadband On-The-Move



Details on the above systems/solutions are available in the separate respective news releases from ST Electronics

ST Electronics' offering at SA2010 will highlight its capabilities in providing systems and solutions in the areas of :

- Unmanned Capabilities
- Simulation, Animation, Games & Edutainment
- Intelligent System for Advanced Control Centres
- Networking the Modern Soldier
- Sensors & Electro-Optics

A quick snapshot of the full complement of exhibits from ST Electronics showcased at Singapore can be found below. The accompanying Fact Sheet holds more detailed information.

UNMANNED CAPABILITIES

ST Electronics' Venus Unmanned Surface Vehicle (USV) is a highly customisable yet modular platform designed to meet growing interest in USV re-configurable for multi-missions. Its modular approach facilitates the integration of multi-missions modules which can then be configured for various missions without risking human life.

The USV Simulator developed by the company is highly customisable and actively engages trainees in problem solving and competency based learning. Being highly modular in nature, the USV Simulator is a cost effective mode of training.

NOTE : Please see separate release on the Venus USV for more information.

STARFISH Autonomous Underwater Vehicle 200mm (AUV)

The STARFISH Autonomous Underwater Vehicle 200mm (AUV) is a robotic device that is driven through the water by a propulsion system. It is controlled and piloted by an onboard computer. The AUV is able to follow a route suitable for various applications. Sensors on board the AUV allow it to sample the surrounding seawater, as the AUV moves through the ocean. This provides the ability to make spatial and time series measurements. The AUV can be used in various commercial, oceanic research and military applications. Some of the commercial applications involve surveying the seabed, environmental studies and maritime surveys as well as ship hull inspection. In military applications, it can be used for underwater surveillance and threat detection.



The technology for the STARFISH AUV was developed by the Acoustics Research Laboratory of the Tropical Marine Science Institute at the National University of Singapore. It is now being commercialised in collaboration with ST Electronics (Info-Comm Systems) Pte Ltd.

SIMULATION, ANIMATION, GAMES & EDUTAINMENT

USV Simulator

The evolution of USVs has brought about critical new capabilities, mixing advanced technologies with complex operations, which invariably creates a need for highly-skilled operators to operate these systems.

ST Electronics has developed a highly customisable USV Simulator which actively engages trainees in problem solving and competency based learning. Being highly modular in nature, the USV Simulator is a cost effective mode of training.

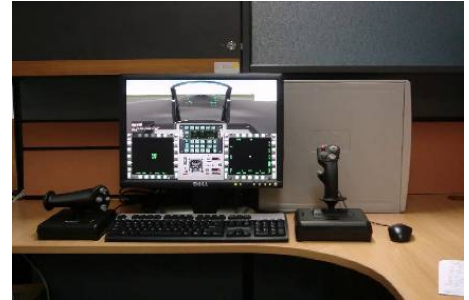
NOTE : Please see separate release on the USV Simulator for more information.

Desktop Avionics Trainer

The Desktop Avionics Trainer (DAT) is a training tool that combines both the Operational Flight Trainer and Computer Aided Instructions (CAI) packages into a PC. It is an ingenious and practical approach to make cockpit controls interactive, like in a real aircraft where Option Selection Switches, control panels and modes can be practically assimilated and interactively accessed through the use of a mouse.

It is 'flyable' using commercial-off-the-shelf hands-on throttles and stick (COTS HOTAS). Auto-pilot controls, similar to those on commercial aircraft, are installed to allow student pilots to concentrate on avionics system training while at the same time, allowing them to fly if desired.

The DAT works on a desktop PC or laptop system and is completely portable with no special hardware requirements. The DAT offers a holistic approach to training where theories, lecture notes, reference materials from the CAI, complete cockpit layout, interactive control functions and pre-recorded demonstration tapes can be easily cross-referenced, accessed and displayed.



3D Virtual World

The virtual world is a platform that enables us to apply our state-of-the-art Simulation, Animation, Games and Edutainment (SAGE) technologies to develop solutions for training and education.

ST Electronics will showcase its capability in the creation of virtual worlds at SA2010. With virtual worlds, the possibilities to incorporate new learning elements are limitless. People can now immerse themselves in an array of experiences without the need to be present in the physical environment through the virtual world.

We will showcase at the upcoming SA2010 the beta testing environment of the "Singapore 2010 Odyssey" Virtual World that is developed to promote sports, culture and the Olympic values and to connect youths from the 205 National Olympic committees ahead of the Singapore 2010 Youth Olympic Games, as well as two other proof-of-concepts Virtual Worlds, ie Virtual Training Centre and Virtual ST Engineering Pavilion.



The Virtual Training Centre aims to introduce new trainees with the organisational values and culture of the Army Training Centre. Registered trainees and their parents can also obtain useful information on the types of training courses conducted through the virtual world and explore the various training facilities before the actual training in the form of avatars from their PC environment.

A virtualised version of the ST Engineering Pavilion @ the show will also be demonstrated. The concept of virtual tradeshow represents yet another excellent application of Virtual World. It compliments any exhibition by allowing visitors to do online virtual tours around the exhibition space, with 3D visuals and information of the exhibits way before their arrival at the site. It can continue to provide product and contact information of exhibiting companies well after the show has ended.

Simulation Tools & Solutions

ST Electronics' subsidiary, Antycip Simulation who is the European leader in the provision of independent modelling and simulation COTS tools, projection systems and related engineering services, will also be showcasing its MyModels and MyBehaviour software tools. MyModels is designed for the quick generation of high fidelity models into Computer Generated Forces applications. MyBehaviour, is a COTS doctrines generator software created to enable training and simulation companies to rapidly generate doctrines in simulation scenarios.

VT MÄK, a related ST Electronics company in the US that develops software to link, simulate, and visualise the virtual world will showcase VR-Forces – a powerful and flexible simulation toolkit for generating and executing battlefield scenarios. VR-Forces COTS tools and toolkits are packed with simulation features for use as a tactical leadership trainer, threat generator, behaviour model test bed or CGF applications.

INTELLIGENT SYSTEM FOR ADVANCED CONTROL CENTRES

iSACC is a networked system that integrates all major information and control systems to help an Operations Centre function effectively. It can be best deployed for an Operations Centre that needs to manage mission-critical resources as well as crises.

iSACC would be suitable for use by an Airport Operations Centre. In this environment, iSACC synchronises all stakeholders and integrates the numerous functional systems already deployed for security, airlines, ground handling and immigration. Airports can now have real-time access to a comprehensive picture of airline schedules and airport resources.



The system will provide time-on-time comparison of key performance indicators, as well as asset management, video views, collaborative planning and decision making functions. The system incorporates an advanced decision support system that anticipates issues associated with airline delays or faults in any airport resource. It will recommend a solution based on each airport's Standard Operating Procedure, thus empowering users to make informed decisions.

iSACC will enhance the airports' ability to handle sudden capacity surges and crises eg. necessary shut-down of a terminal due to potential security threats and the swift diversion of travellers and airlines to other available terminals.

The system functions on the suite of GENiiE products developed by ST Electronics. These include secured Voice, Video and Visual software for real-time multimedia communication; large scale 'live' and playback video management system; digitally-shared map of the entire infrastructure with real-time movement and tracking of assets and personnel; collaborative and interactive information portal

for monitoring and managing of assets; back-end simulation system that allows commanders to create scenarios to train operators in Control Centres.

NETWORKING THE MODERN SOLDIER

Advanced Combat Man System

ST Electronics' Advanced Combat Man System (ACMS) is one of the world's most advanced soldier systems. It equips and connects the modern day soldier as part of a larger network-centric force, enabling him to tap into the wider resources of the battalion and call for fire and combat service support more efficiently.

Lightweight, good ergonomics and efficient electrical power management are the key considerations in the design of ACMS to meet the demanding operational requirements of dismounted soldiers.

ST Electronics equips the ACMS with an Ad Hoc Network communication system for efficient data and file transfer

NOTE : Please see separate release on the ACMS for more information.

SuperneT™ Family of OneHub® Integrated Communication System ST6800

The SuperneT OneHub Integrated Communication System ST6800 (also know as OneHub ICS) is an award-winning, IP-based C4 (command, control, computer & communication) system that seamlessly integrates various sub-systems to provide data and voice interoperability as well as information dissemination across disparate systems. Applications for the OneHub ICS include

- Strategic Integrated Communication System, Field Deployable Integrated Communication System,
- Vehicular Integrated Communication System and Shipboard Integrated Communication System.

SuperneT™ OneHub® Configurable Radio Switch



SuperneT OneHub Configurable Radio Switch ST6800 (also known as OneHub CRS) is a compact and self-contained communication system specially designed to support mission critical multi-user radio access, inter-communication and conferences suitable for homeland security agencies and military operations. It addresses harsh environmental and operational needs of small workgroups in a confined stationery or mobile platform. The OneHub CRS comprises a Main Unit, Operator Control Panel and Radio Control Panel.

CETEON MIL-SPEC Vehicular Computers

The CETEON MIL-SPEC Vehicular Computers (also known as CETEON MVC) are ideal for use in tracked and wheeled vehicles. ST Electronics' family of high



performance CETEON MVC is ruggedised to suit mobile Command, Control, Communications and Computer (C4) applications.

The CETEON MVCs are designed to optimise space constraints in vehicles while the low power consumption makes it highly suitable for use in vehicular applications on the battlefield.

The CETEON MVCs are available in two variants – MVC 900 and MVC 500 (compact design) to suit different vehicular applications for defence and homeland security agencies.

SENSORS & ELECTRO-OPTICS

Broadband On The Move

For the past 18 years, ST Electronics has realised the value of satellite communication and its power to deliver global connectivity across a broad range of industries and geographies. Demand for Broadband On The Move has never been so evident and we provide innovative solutions to satisfy our customers with the advanced technologies and best of breed satellite Hub, Transceiver and Router products. The users can continue to enjoy broadband communication, satellite TV, video conferences and on the move at sea, in the air and on land.



Agilis Multi-Beam Antenna (MBA)



The Multi-Beam Antenna is capable of receiving and transmitting multiple simultaneous beams that may be pointed in arbitrary directions without suffering any scanning loss. Users can take advantage of the 360° broadband data communication to enjoy seamless connection. It features UHF, L-band, S-band and C-band antenna feeds equipped with spherical lens that provide users with the ability to focus incoming microwave energy. It is a light weight, high gain, omni-directional antenna, with a full 360° azimuth arc that offers broadband access with multi-feed capability.

Sentinel

Currently, many radar tracking systems are under-performing due to high false alarm rates or inability to detect small targets. Through conscientious R&D efforts, ST Electronics has specially designed a radar extractor system running on Track-Before-Detection (TBD) algorithms. This powerful software engine enables the detection of small targets in environment with heavy noise and clutter. The conventional technique, known as Constant False Alarm Rate (CFAR) uses adaptive thresholds that are higher than clutter and noise levels to achieve low false alarm rates. As a result, small targets with signal strengths that are lower than the thresholds are filtered out and left undetected.

For the TBD technique, ST Electronics has deliberately lowered the threshold to the noise level that allows noise, clutter and targets (strong and weak targets) to seep through for processing. Our TBD tracks every single noise, clutter and target using special algorithms and, by identifying the dynamic movement of all the data, detection of small targets with a very low false alarm rate is achieved.

TBD has a unique capability to allow tracking of small targets in auto-initiation mode in a 360° sector. Conventional systems have difficulty operating in this mode due to high false alarm rates generated. TBD is particularly suitable for handling any element of surprise encountered in a situation of threat, from all angles.

Wireless Sensor

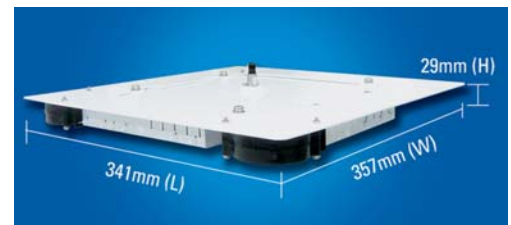
Our wireless sensor integrates sensor and communication module into a compact and low-powered unit. The wireless sensor can be deployed on a large scale and communicates through Wireless Sensor Network (WSN), GSM/GPRS and low data rate Low Earth Orbit (LEO) satellite services.

Battery operated wireless sensors with various non-contact sensing technologies, such as radar, infrared, magnetic and acoustic can be used for various applications including intruder detection, environment monitoring, Supervisory Control And Data Acquisition (SCADA) and more. The sensor can be deployed in remote areas, either as standalone or form part of networked clusters, for environment monitoring applications, such as flash floods, forest fire, illegal logging or security breaches.

GPS and satellite transmitters can be integrated to the wireless sensors for tracking the mobile assets such as vessels, fleets, container location, with geo-fencing feature, which can be tracked via LEO satellite networks.

Ultra Slim Ku-Band 20W/40W Block Up Converters (BUC)

ST Electronics has launched an ultra slim BUC for Broadband-On-The-Move (BOTM) applications used for transmission in a VSAT (Very Small Aperture Terminal) system. A mere 4.8kg and less than 3cm thick, it provides highly reliable performance even under harsh operating environment. The rotary joint provides a multiplexed signal to 'transmit' at Ku-Band and 'receive' at L-Band frequencies. As it is highly linear, the BUC can be used in multi-carrier applications such as BOTM, satellite TV, video conferencing in trains, cars and coaches. The innovative thermal management technique of this Ultra Slim Ku-Band BUC increases long-term reliability and it has been field proven to withstand a wide operating temperature range of -20 to +50 degrees Celsius in up to 100% humidity.



V180 Day/Night Camera

The V180 Day/Night Camera is a series of all round surveillance products that provide panoramic view in both day and night environments when faced with adverse visibility. The innovative design is based on a patented optical module and integrated video enhancement. The V180 Day camera uses high resolution CCD arrays, while the V180 Night Camera uses the latest state-of-the-art uncool detector which senses thermal radiation from the target and surroundings to generate real-time video imagery. The video images are enhanced by the integrated video processing board to provide a seamless 180 degrees view, suitable for viewing on a standard video monitor.

Its applications range from 180 degree outdoor monitoring of important installations in adverse lighting conditions and it is also suitable for mobile armoured vehicles and unmanned ground vehicles or robotics.

CORIS MK II

The CORIS MK II is a series of modularly designed weapon sights which is easily reconfigurable to handheld and helmet-mounted sights. It is compact, ruggedised, lightweight and modular in design. The Field of View (FOV) can be configured by selecting from a wide series of optical lenses available with the CORIS MK II. Its modular design makes it suitable for adaptation for a wide range of applications, such as weapon sight, handheld and helmet-mounted displays.



Mini-T – Lightweight Multi-Sensor Stabilised Payload

The Mini-T is a stabilised day/night surveillance payload specially suited for moving platforms and quick mobile applications. Equipped with optional advanced image fusion capabilities, it is developed for patrol crafts, unmanned crafts and mobile surveillance systems.

*For a comprehensive understanding of our products and solutions on show, we have attached a **Fact Sheet** for your information.*

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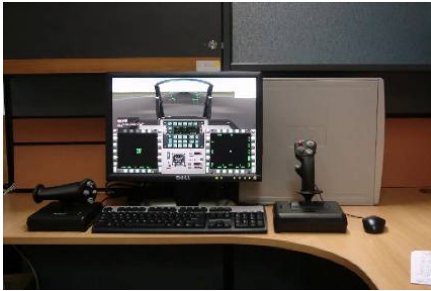
FACT SHEET

Desktop Avionics Trainer

The Desktop Avionics Trainer (DAT) is a training tool that combines both the Operational Flight Trainer (OFT) and Computer Aided Instructions (CAI) packages into a PC. An ingenious and practical approach to make cockpit controls interactive, it is like a real aircraft with Option Selection Switches (OSS), control panels and modes that can be practically assimilated and interactively accessed using the mouse.

It is flyable, using commercial-off-the-shelf hands-on throttles and sticks (COTS HOTAS). Auto-pilot controls, similar to commercial aircraft, are installed to allow student pilots to concentrate on avionics system training and at the same time, allowing them to fly, if desired.

DAT works on a desktop PC or laptop and is completely portable with no special hardware requirements. The DAT offers a holistic approach to training where theories, lecture notes, reference materials from the CAI, complete cockpit layout, interactive control functions, and pre-recorded demonstration tapes can be easily cross-referenced, accessed and displayed.



Representative Desktop Avionics Trainer

When connected to the projector and Smart Board, it can be extended to mass training where valuable lessons and knowledge can be shared. The user is able to click on the big screen using the pen (stylus) provided by the Smart Board instead of using the computer mouse. Being portable, the DAT maximises training and optimises resources, especially during overseas deployment.

Advantages of Desktop Avionics Trainer

The current CAI packages provide a wide overview of aircraft systems using a non-interactive page turning method. Knowledge retention is reinforced by questions at the end of the lesson. The packages are designed for specific topics. As such, knowledge attained is piece-meal and applicable for a static scenario. For a complex subject like radar operation, DAT will significantly reduce training time and increase knowledge retention as well as better understanding of the subject by providing radar theory (just like CAI), radar mode change that will affect displays (on HUD, HSD & radar page), and the necessary controls on HOTAS that will affect radar mode change. All these can be learnt interactively using dynamic scenario with easy cross references to different subject components. On top of that, pre-recorded demonstrate tapes can also be displayed for further illustration.

The OFT, on the other hand, is a complete simulation of the actual system in flight. Operation of the system typically requires an operator and a qualified flying instructor at the Instructor Operating Station. Space within the cockpit is limited and does not allow reference materials to be conveniently placed without interfering with normal operation. The OFT is not portable and has only one cockpit allowing only one student pilot to be effectively trained at any one time.

The DAT aims to complement the CAI and the OFT.

SuperneT™ OneHub® Configurable Radio Switch ST6800

SuperneT OneHub Configurable Radio Switch (CRS) is a compact and self-contained communication system specially designed to support mission critical multi-user radio access, inter-communication and conferences suitable for homeland security agencies and the military operations. It addresses harsh environmental and operational needs of small workgroups in a confined stationary or mobile platform.

The OneHub CRS comprises a Main Unit, Operator Control Panel and Radio Control Panel.

Applications :

- Mobile vehicle
- Armoured vehicle
- Command post
- Shipboard small vessel
- Maritime port control
- Airport ground control
- Search and rescue operation
- Offshore operation

Key Features :

- Supports point-to-point operator intercom
- Supports operator conferencing
- Supports conference audio recording
- Supports radio access, monitoring and patching
- Supports radio data access and transmission
- Provides Push-to-Talk (PTT) priority scheme
- Supports trunk line operation
- Supports full-duplex operation
- Supports split-ear operation
- Provides easy remote access via Ethernet connectivity
- Capable of self-configuring and self-managing to form a larger communication network

CETEON MIL-SPEC Vehicular Computers

The CETEON MIL-SPEC Vehicular Computers (also known as CETEON MVC) are ideal for use in tracked and wheeled vehicles. ST Electronics' family of high performance CETEON MVCs are ruggedised to suit mobile Command, Control, Communications and Computer (C4) applications.

The CETEON MVCs are available in 2 types – MVC 900 and MVC 500 (compact design), to suit different vehicular applications for the military and homeland security agencies.

Benefits :

- Withstands harsh environmental conditions, exceeding stringent MIL-STD 810 test standards
- Optimises space usage in all vehicular applications
- Provides versatility with its expandable feature
- Adapts to a wide range of vehicle platform integration

Features :

- Integrated with powerful processor
- Multiple input/output interfaces for ease of integration
- Flexible module configurations to suit vehicles with space constraint
- Fan-less
- Rugged colour LCD for easy reading under different weather conditions
- Optional graphics accelerator to suit intense use of graphics
- Optional power management system for uninterrupted performance while on the move



V180 CAMERA



The V180 Day/Night is a series of all round surveillance products developed by STELOP to provide panoramic view in the day and night environments when faced with adverse visibility. The innovative design is based on STELOP's patented optical module and integrated video enhancement. The V180 Day uses high resolution CCD arrays, whereas, the V180 Night uses the latest state-of-the-art uncool detector which senses thermal radiation from the target and surroundings to generate real time video imagery. The video images are enhanced by the integrated video processing board to provide a seamless 180 degrees view suitable

for viewing on a standard video monitor.

Its applications range from outdoor 180 degree monitoring of important installations with adverse lighting conditions and it is also suitable for mobile armour vehicles and unmanned ground vehicles or robotics.

Coris MKII

The Coris MK2 is a series of modularly design weapon sight which is reconfigurable to handheld and helmet mounted sight with ease. Based on STELOP years of experiences, the product is compact, ruggedised, light weight and come in modular design, whereby the FOV could be changed with our wide series of optical lens available from STELOP.

Due to its modular design it is suitable for adaption to a wide area of applications, such as weapon sight, handheld and helmet mounted display.

Mini-T – The Lightweight Multi-Sensor Stabilised Payload

The Mini Turret is a stabilised day/night surveillance payload specially for moving platforms and quick mobile applications. It is equipped with optional advanced image fusion capabilities. It is developed for patrol crafts, unmanned crafts and mobile surveillance systems.

Key Features :

- Multiple sensors: day camera, FLIR, laser pointer and/or laser range finder
- Modular (Interchangeable sensor) for different types of day/night camera
- Compact size and lightweight



- All electronics integrated within turret
- User friendly local control panel (LCP) or laptop control
- Detection range
(based on 50% probability) > Day camera (human target up to 9000m)
> Night camera (human target up to 3000m)

Applications :

- Marine Platforms
- Land Vehicle Platforms
- Telescopic Matt Platforms
