FNSS Savunma Sistemleri of Turkey and local company PT Pindad have unveiled their Modern Medium Weight Tank (MMWT) at Indo Defence 2016.

The MMWT is being developed for the Indonesian Army and two prototypes are being built, one in Turkey and one in Indonesia – both to be completed in 2017.

It is fitted with a Belgian CMI Defence two-person turret armed with a 105mm rifled gun that is fed by a bustle-mounted automatic loader with a 7.62mm machine gun mounted co-axial with the main armament. The 105mm gun can fire a wide range of ammunition.

To enable stationary and moving targets to be engaged with a high first round hit probability, a computerised fire control system is installed; the commander and gunner are both provided with stabilised day/night sights incorporating a laser rangefinder. The commander is provided with a panoramic sighting system to allow for hunter/killer target engagements to take place.

The powerpack is a high-performance diesel engine coupled to an electronically controlled automatic transmission and a cooling system to allow the MMWT to operate in high ambient temperatures.

FNSS is quoting a maximum road speed of 70km/h, a cruising range of up to 450km and a power-to-weight ratio of 20hp/tonne with a gross vehicle weight of around 35 tonnes.

The baseline hull is of all-welded steel armour to which an appliqué armour package can be fitted for a higher level of ballistic protection. Under-belly mine protection is fitted, as is a fire detection and suppression system. Standard equipment includes an air-conditioning system, cameras for situational awareness and an auxiliary power unit that allows all the key subsystems to be run with the main diesel engine switched off.

The role of the MMWT is not to engage more heavily armed and protected main battle tanks but to engage lighter threat vehicles such as reconnaissance platforms, infantry fighting vehicles, troop carriers and combat support vehicles.

It can also be used to support dismounted infantry in the direct fire role, with the 105mm gun being used against pill boxes and other battlefield obstacles. Its light weight and low profile allow it to be deployed in areas that cannot be accessed by traditional MBTs that today normally weigh well over 70 tonnes.
Efektivitas tempur Gripen tak tertandingi sampai hari ini, didukung oleh program pengembangan yang berkesinambungan sampai ke masa yang akan datang. Hanya Gripen yang menawarkan pertahanan dan keamanan yang ampuh untuk Indonesia di abad ke-21.

Gripen terus diproduksi, terbukti keandalannya di mancanegara dan siap untuk digunakan saat ini juga. Hanya Gripen yang dapat mengirimkan skuadron siap tempur yang tepat waktu untuk kebutuhan Indonesia.


Gripen dapat memberikan ini semua dengan mengikuti jadwal serahterima yang ketat dan sesuai dengan ketersediaan anggaran yang terbatas.

Maka kami menyerbutnya, The Smart Fighter.

www.saab.com/indonesia
The future KRI Raden Eddy Martadinata, the first of two SIGMA 10514 Perusak Kawal Rudal (PKR) frigates on order for the Indonesian Navy (TNI-AL), has successfully completed sea trials ahead of delivery in early 2017.

Damen Schelde Naval Shipbuilding (DSNS) – as prime contractor – signed a contract in December 2012 with the Indonesian Ministry of Defence for the first PKR. An option for the second vessel was exercised in mid-2013. Construction of the ships has been shared between the Vlissingen, Netherlands, facility of DSNS and the PT PAL shipyard in Surabaya. The 105m, 2,365-tonne PKR frigates are the largest SIGMA variants built to date.

Concurrent collaborative modular build has significantly reduced construction time, with manufacture activities for the ship only beginning in January 2014. “The success of the programme rested on the two yards working together with the end client operating almost as a single unit,” said DSNS in a statement. “The strong relationship also allowed the technology transfer programme to proceed smoothly, both in Indonesia and in the Netherlands.”

Each vessel is made up of six modules. For the first ship, four of these were built by PT PAL; the remaining two, comprising the bridge/command centre and the main machinery space, were built, outfitted and fully tested by DSNS in Vlissingen before being shipped for final assembly at PT PAL.

Prior to the start of sea trials, the ship completed seven days of basin trials to ensure that the propulsion and safety systems were fully operational, before commencing passage from the PT PAL shipyard in Surabaya to the open waters of the Java Sea. The ship then completed a two-week period of sea trials during late August/early September, including tests of a weapon, sensor and command systems. Noise measurements and cavitation observations were also performed.

The main sea trials period concluded on 7 September. In a statement, DSNS said the trials were successful “with almost all the systems passing their assessments first time around”. Minor changes, including modifications to accommodation, were implemented prior to three days of final testing at the end of September. Raden Eddy Martadinata is on schedule for delivery at the end of January 2017 following the completion of three months of crew training. Work continues at Vlissingen and Surabaya on the build of the second PKR vessel, to be named Gusti Ngurah Rai. Delivery is scheduled for October 2017.

Danish systems and sensors house Terma A/S (Hall D, Stand 004) has confirmed an order for SCANTER 6000 radars from Indonesia’s Sea and Coast Guard (Kesatuan Penjaga Laut dan Pantai – KPLP) to equip five patrol vessels.

The procurement, to meet an urgent requirement for improved navigation, surveillance and helicopter control functionality, is being delivered in a short timescale, with concurrent installations being undertaken in the vessels’ respective home ports.

SCANTER 6000 is a coherent X-band 2D solid-state radar developed by Terma to address market requirements for improved surface and low airspace situational awareness. It has been specifically designed as an affordable all-weather sensor solution to plug the gap between standard marine navigation radars and more expensive military surveillance radar systems.

According to Terma, the five KPLP patrol boats to receive SCANTER 6000 comprise KN Trisula, KN Kalimasadha, KN Kalawai, KN Chundamani and KN Gandiwa. In each case, the SCANTER 6000 system is being integrated with the Northrop Grumman Sperry Marine Vision Master automatic radar plotting aid (ARPA) display system.

The SCANTER 6000 radar fit is intended to provide the host ships with the ability to detect and track small targets in congested and heavy clutter conditions. The radar can also be used to support helicopter control in search and rescue, fisheries patrol, pollution monitoring, and enforcement missions.

Separately, the Royal Malaysian Navy has selected the SCANTER 6000 radar as the combined navigation/helicopter control radar for the mid-life modernisation and service life extension of its two Lekiu-class frigates. The radar is again being integrated with the Vision Master ARPA display system, and will also provide a data feed to the BAE System NAUTIS II combat management system on the frigates.
Rheinmetall Defence of Germany (Hall D, Stands 187 and 189) is supplying Indonesia with 103 Leopard 2 main battle tanks (MBTs) and 42 overhauled Marder 1A3 infantry fighting vehicles (IFVs) plus eight to be used as spare parts. All the Marder 1A3s have been delivered.

In addition there are two Buffel 2 armoured recovery vehicles (ARVs), one Leopard 2 driver training tank, three Biber armoured vehicle-launched bridges (AVLBs) based on a modified Leopard 1 MBT chassis, two Leopard 1 ARVs, three Leopard 1 armoured engineer vehicles (AEVs), plus ammunition and training.

Of the 103 Leopard 2 MBTs, 42 are referred to as a Leopard 2+ and the remaining 61 as Leopard 2 RI (Republic of Indonesia). All retain the Rheinmetall 120mm L44 smoothbore gun, 7.62mm co-axial and 7.62mm anti-aircraft machine guns and banks of 76mm electrically operated grenade launchers either side of the turret.

The Leopard 2+ MBTs for Indonesia have all now been delivered and these are basically surplus Leopard 2A4s overhauled by Rheinmetall and fitted with a bustle-mounted air-conditioning system for use in the high ambient temperatures encountered in Asia.

The Leopard 2+ MBTs for Indonesia have all now been delivered and these are basically surplus Leopard 2A4s overhauled by Rheinmetall and fitted with a bustle-mounted air-conditioning system for use in the high ambient temperatures encountered in Asia. The first two batches of the more advanced Leopard 2 RI have been delivered and work is now underway on the third batch, which will be delivered in the first quarter of 2017.

In addition to the air-conditioning system, the Leopard 2 RI has its original hydraulic gun control equipment (GCE) replaced by an all-electric system, and has a rear-view camera and an auxiliary power unit (APU). The APU allows all of the main systems to be run with the main MTU diesel switched off.

The 120mm L44 smoothbore gun has been modified and the sighting system has also been modified to fire the latest Rheinmetall 120mm DM11 programmable high-explosive (HE) projectile, which has already been qualified and is in quantity production. This has three fuze function options, which are selected depending on the type of target to be engaged. These options are air burst (time fuze), impact and impact with delay, with the last being useful in the bunker busting role.

Indonesia’s Leopard 2 RI is fitted with a passive armour system that covers the frontal arc, with bar/slat armour over the rear arc of the hull and turret. The latter has been added to provide protection against attack from the widely deployed RPG-7 rocket-propelled grenade and similar weapons fitted with a single high-explosive anti-tank (HEAT) warhead.

The Indonesian Leopard 2 upgrade was the first one to be won by Rheinmetall Defence, but more recently the company has been awarded a contract to upgrade 110 Leopard 2A4s to the Leopard 2A5 standard for the Polish Army, which are to be delivered by 2020.
Korea Defence Industries
Booth #D215
INDO DEFENCE 2016
China North Industries Corporation (Hall B, Stand 058) is emphasising its SR5 Universal Artillery Rocket Launcher (UARL), writes Christopher F Foss, which is based on a 6x6 cross-country truck chassis for strategic mobility. The SR5 UARL has a powered turntable, which can carry two pods of 20 x 122mm unguided rockets or two pods of 6 x 220mm unguided rockets, or one pod of each for added flexibility.

More recently NORINCO has announced that the SR5 can fire guided rockets. The first of these is the Fire Dragon 40 122mm, which has an inertial navigation system (INS) and a global positioning system (GPS) claimed to provide a circular error of probability (CEP) of 25m, with the solid propellant rocket designated the BRE7. Fire Dragon 40 is stated to have a minimum range of 20km and a maximum range of 40km and is fitted with a steel ball high-explosive (HE) warhead with a lethal radius of 60m.

The second is the King Dragon 60 (GR1) 220mm laser-guided terminal rocket, which also has INS and GPS guidance and a CEP of 25m, with the solid propellant rocket designated the GR1. When used in laser-guided configuration, the CEP is stated to be 3m.

The King Dragon 60 has a minimum range of 25km, a maximum range of 70km, and can be fitted with various types of warhead including HE and penetrating.

While NORINCO has never released details of any artillery rocket systems exports, the SR5 UARL has recently been identified to be in service in Bahrain with pods of 122mm and 220mm rockets, but at this stage it has not been confirmed that Bahrain has guided rockets.
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Pembentukan tim pertahanan udara

BY DAVID DONALD

Saab dan PT Pindad (Hall D, Stands 095 dan 043) mempersembahkan sistem baru, GBAD (ground-based air defence) dengan radar Giraffe 1X dan sistem peluru RBS 70 NG untuk memenuhi kebutuhan Indonesia, dan mengembangkan kapabilitas industri lokal. Sistem elemennya termasuk, simulator/trainer, radar dan multi-launcher dipamerkan oleh PT Pindad.

“Sistem GBAD dengan RBS 70 NG dan Giraffe 1X merupakan langkah paling tepat untuk tentara Indonesia yang telah mengerti sistemnya dengan baik,” kata Peter Carlqvist, ketua Saab Indonesia. “Dengan memfokuskan peningkatan kapasitas lokal bersama PT Pindad, sistem GBAD dapat melindungi angkatan udara Indonesia hingga 30 atau 40 tahun kedepan.”

Proposal Saab dan PT Pindad untuk pembuatan sistem baru dimana kedua perusahaan bekerjasama dalam men-upgrade kapabilitas VSHORAD (very short-range air defence) Indonesia, yang pernah memakai versi lama RBS70 dan Giraffe. Indonesia memperoleh sistem orisinil RBS 70 dan radar Giraffe 40 di tahun 1980-an, dan di-upgrade untuk memenuhi kebutuhan jangka pendeknya. Atas rencana kedua tim, pentransferan teknologi dilakukan agar PT Pindad dapat melanjutkan pengerjaannya, yang melibatkan penggantian lima atau enam komponen di 2 misil RBS 70 Mk, sekaligus lebih dari 100 check-points di seluruh programnya.

Walaupun pengerjaan ini telah memberikan kolaborasi dan pembentukan tim para ahli di Indonesia, tim tersebut juga telah melihat kebutuhan GBAD di negara sekitarnya. Proposal yang dibuat melibatkan radar Giraffe 1X, compact radar AESA (active electronically scanned antenna) yang meliputi 360°, beserta kemampuan menggabungkan C-RAM (counter rockets, artillery and mortars). Senjata ini dapat dikerahkan di instalasi tetap atau yang bergerak, khusus dipasang pada tempat kendaraan.

Proposal utama adalah sistem misil RBS 70 NG, yang dilengkapi dengan thermal imaging sight untuk memberikan kapabilitas 24/7. Sistem penunjangnya memakai teknologi laser anti macet, dan operator berada di putaran yang sama, memudahkan penggantian poin sasaran dengan kontrol manual atau mengganti sasaran dalam kondisi bergerak.

Dengan jarak mencapai 8km (5 mil) dan meliputi ketinggian hingga 5.000m, RBS 70 NG dapat beoperasi di semua situasi, termasuk perkotaan, dan seluruh cuaca ekstrim. Model ini juga dapat digunakan dengan misil versi RBS 70 yang sudah ada, termasuk misil Bolide yang berkemampuan kapabilitas fourth-generation all-target. Bolide dapat melawan sasaran seperti UAV ukuran kecil dan misil kapal, juga ancaman udara tradisional dan agresif lainnya. Misil ini memiliki shaped-charged, pre-fragmented warhead yang dapat mengalahkan sasaran berpelindung seperti; helikopter dan pesawat, juga dapat dikerahkan untuk sasaran yang di darat.

RBS 70 NG didesain dengan sistem modul yang dapat mengaplikasikan beberapa konfigurasi. Termasuk salah satunya adalah konfigurasi man-portable dan vehicle-mounted, beserta konfigurasi remotely-operated untuk perlindungan aset-aset di wilayah strategis.

Solusi GABD yang lengkap memberikan optimisasi komando dan sistem kontrol dengan menggunakan visual 2D dan 3D yang canggih agar operator dapat bertindak cepat dan responsif. Sistem ini merangkup fungsi otomatis canggih seperti pendeteksi target, pelacak otomatis untuk memudahkan pekerjaan operator.

Fleksibilitas RBS 70 NG mengijinkan senjata ini untuk dipakai di konfigurasi single-launcher MANPADS (gambar diatas), atau dengan multiple-launchers di berbagai kendaraan atau di tempat
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CN235 is a versatile and multi-purpose aircraft that can be used as passenger transport, cargo transport, air-dropping of supplies or troops/paratroops, medical evacuation, and variety of intelligence, Surveillance and Reconnaissance (ISR) purposes such as maritime surveillance, maritime patrol, anti surface as well as anti submarine warfare.

Find out more about CN235 and other Indonesian Aerospace (I Ae) products at Indo Defence Expo & Forum 2016.
Penggandaan senjata

BY DAVID DONALD

Pembuat roket dan kontraktor pertahanan terkemuka Turkey, Roketsan (Hall A, Stand 043), perusahaan Turkish Armed Forces Foundation, telah datang ke Indonesia untuk mempersembahkan berbagai portfolio roket dan perangkat misilnya.

Perusahaan ini telah melakukan uji coba senjatanya sebelum dipakai untuk keperluan militer. Salah satunya adalah misil pelindung pesawat udara, Hisar yang dikembangkan untuk altitude rendah dan sedang. Hisar menggunakan petunjuk gambar infrared, sistem kontrol thrust-vectoring, sistem kontrol data link, dan mesin dual-pulse.

Beberapa uji coba Hisar-A low-altitude dan Hisar-O medium level telah berhasil dilakukan di bulan Juli. Keduanya terbukti sangat efektif untuk menghancurkan keduanya sayap pesawat yang tidak bergerak dan yang berputar, UAV, misil yang meluncur dan yang ditembak langsung dari udara ke darat.

Adapun, di pameran ini, Teber ; perangkat INS/GPS yang dapat merubah bom standar Mk 81/82 menjadi lebih akurat.


Kombinasi L-UMTAS dan roket Cirit laser, telah diresmikan untuk T-129 ATAK, dengan desain yang dapat menggabungkan kedua sistem konfigurasi untuk efek yang lebih mematikan.

Di 2014, Angkatan Udara UAE mengirim Cirit untuk mempersenjatai pesawat AT802i/Archangel yang senjatanya telah ditembaki di Yemen. Cirit juga telah diintegrasikan dengan Leonardo (sebelumnya Selex ES) Falco UAV. Di Indo Defence, Roketsan menawarkan aplikasi darat Cirit dengan PMC (pedestal-mounted Cirit) yang baru yang bisa diinstal di kendaraan mobilitas tinggi atau kendaraan beroda.


Adapun penembak roket untuk anti-submarine warfare (ASW) dan multi-calibre dan multi-barrel roket untuk 107mm, 122mm dan 300mm yang akan diperlihatkan di hall pameran tahun ini.
CBRN (chemical, biological, radioactive, nuclear) is dangerous. Getting it cleaned up takes some effort, but Italian firm Cristanini (Hall A, Stand 098) has an innovative range of decontamination/detoxification systems that makes it easier.

The Sanijetgun puts the operation in the hands of a single person, allowing hot or cold water under high pressure to mix with BX 24 powder, which is sprayed onto vehicles, equipment or personnel. The special lightweight and compact lance enables the operator to carry out three operations at the same time: pre-washing, decontamination/detoxification and rinsing.

“Unlike most decon/detox systems requiring the decontaminant to be mixed beforehand, our Sanijetgun mixes the chemical with water as it is operated,” explained a company spokesman, adding that on sensitive equipment such as aircraft instruments, computers and electro-optics, it uses a non-corrosive, non-toxic decontaminant such as SX 34, which is environmentally friendly and does not damage sensitive equipment when cleaned. “CBRN is the genie in the bottle,” said Cristanini. “We need to make sure it remains contained.”

Among other products is the LDV-X for effective protection inside critical infrastructures and decontamination of large volumes; Shelter CBRN/2, a self-contained large capacity mobile field station for continuous and simultaneous detoxification; BX 40 liquid for the decontamination of aircraft and helicopters; and the PSDS 1.5 Mil small system for manual use.
Keberhasilan uji coba di laut

BY RICHARD SCOTT

KRI Raden Eddy Martadinata, merupakan salah satu dari dua SIGMA 10514 Perusak Kawal Rudal (PKR) frigate yang telah dipesan oleh Angkatan Laut Indonesia (TNI-AL) untuk pengiriman di awal tahun 2017, telah berhasil diuji coba.


Konstruksi kapal dibagi di fasilitas DSNS yang terletak di Vlissingen, Belanda dan pabrik kapal PT PAL Surabaya, Indonesia. Hingga saat ini, 105m, 2.365 ton PKR frigate merupakan variasi SIGMA terbesar yang pernah ada.


Setiap kapal dibangun mencapai enam modul. Untuk kapal yang pertama, empat modulnya dibuat oleh PT PAL; sisanya, merangkup jembatan/ruang komando dan ruang mesin, dibangun, dipasang dan diuji coba oleh DSNS di Vlissingen sebelum dikirim untuk pemasangan terakhir di PT PAL.

Sebelum uji coba pertama dimulai, kapal tersebut dilakukan uji coba bak kapal selama tujuh hari untuk memastikan daya penggerak dan sistem keamanan beroperasi maksimal, setelah itu baru digerakkan oleh PT PAL Surabaya ke laut Jawa. Kemudian kapal tersebut menyelesaikan uji coba selama dua minggu di akhir Agustus/awal September, termasuk uji coba senjataannya, sensor dan sistem komando. Pengukuran tingkat suara dan kavitasi juga dilakukan.


Radar untuk kapal patroli Indonesia

Perusahaan sistem dan sensor Denmark, Terma A/S (Hall D, Stand 004) telah memberikan konfirmasi pemesanan SCANTER 6000 radar untuk KPLP (Kesatuan Penjaga Laut dan Pantai) untuk dipasangkan di lima kapal patrollinya.

Pembelian yang dilakukan untuk memenuhi kebutuhan peningkatan navigasi, pengawasan dan pengontrolan helikopter akan diikrim di waktu singkat dengan instalasi di masing-masing pelabuhan. SCANTER 6000 merupakan radar koheren X-band 20 solid-state yang dikembangkan oleh Terma untuk memenuhi kebutuhan pasar dalam peningkatan pengawasan sasaran kecil di kondisi kaca dan padat. Radar tersebut juga dapat dipakai untuk mendukung pengontrolan helikopter dalam misi penyelamatan, patroli di perikanan, memonitor polusi lautan dan misi-misi kekerasan.

Selain itu, Angkatan Laut Malaysia juga memilih radar SCANTER 6000 untuk kombinasi kontrol navigasi/helikopter dalam usahanya meningkatkan ekstensi kinerja di kedua frigate kelas Lekiu-nya. Radar tersebut juga diintregasi dengan sistem Vision Master ARPA, yang akan memberikan data feed ke sistem tempur BAE NAUTIS II di frigate tersebut.
OPTIX JSC of Bulgaria (Hall D, Stand D010), a specialist in the development and manufacture of optical systems and devices for military and law enforcement applications, as well as for the civil market and hunting fraternity, is presenting its wide-ranging portfolio here at Indo Defence. Military products include day and night vision sights and attachments, thermal vision devices, and mobile surveillance systems.

Among the newest products is the all-weather NVA-10 clip-on device that in combination with any rifle-scope converts a weapon into a fully functional night vision weapon system. The clip-on device incorporates mirror lens objective, which results in reduction of the overall length, reduces the maximum weight, and performs with a field of view of 10°. It is applicable to a wide range of weapons, from assault rifles to the most precise long-range rifles, ensuring a crisp and clear image during the night. The LRF 905-500 is a compact laser rangefinder clip-on to the company’s thermal imaging scopes for the military and law enforcement sniper teams, which increases the chances of precision shooting by adding the distance factor, ensuring proper measurement on more than 500m and facilitating the snipers’ calculations on target acquisition.

OPTIX, as part of the international ATO consortium, was responsible for the integrated system for monitoring and protection of the Bulgarian Black Sea frontier ‘Blue’ border, which provides the Bulgarian Border Police with all the necessary equipment to detect, identify and track maritime vessels and other illegally passing intruders. Continuous monitoring and transmission of information are made in real time and in all weather conditions, such as complete darkness, dense fog, snow, dense smoke and dust, within a radius of 21km. The monitoring system meets the EU’s Schengen requirements.
Aman setiap saat

Perusahaan elektronik Jerman, Rohde & Schwarz (Hall A, Stand 117) mendemonstrasikan variasi integrasi alat komunikasi dan solusi pengintaian radio. ARDROBIS untuk mendeteksi dan mengganggu komunikasi microdrone, yang memberikan pemakai untuk mengidentifikasi sinyal kendali dengan cepat dan mengganggu perhubungan sinyal, dipertunjukkan pertama kali di Asia. Alat ini juga meningkatkan kapabilitas fleksibilitas sistem sekuriti. Selain itu ada NAVICS yang merupakan VoIP-base system untuk komunikasi di laut yang memberikan teknologi inovatif dan intuitif untuk si pemakai. Ini merupakan komponen inti untuk penyampaian suara dan data komunikasi untuk seluruh kategori kapal. Sistem ini bersambung dengan terminal-terminal suara onboard dan sub-sistem lainnya untuk komunikasi internal dan eksternal lewat jaringan IP yang sama.

PT PAL memilih Tim Korvet baru

Tim industri Spanyol, Indra and Navantia telah dihubungi oleh perusahaan perkapalan dari Indonesia, PT PAL untuk meningkatkan korvet Angkatan Laut KRI Malahayati kelas Fatahillah milik Tentara Angkatan Laut Indonesia (TNI-AL).

Dengan kesepakatan kontrak yang berkisar di 15.7 juta Euro (18 juta dolar AS), kedua perusahaan tersebut akan meningkatkan sistem tempur di kapal Malahayati dengan sistem komando yang baru, anti kebakaran dan sistem perang elektronik yang baru. Keseluruhan barang yang disuplai termasuk pendukung elektronik dari Indra Rigel, pengontrol api Navantia Dorna dan variasi tempur SCOMBA manajemen sistem Navantia.

Kontrak dari PT PAL merupakan sebagian dari proyek-proyek yang sedang dikerjakan Indra and Navantia dalam memenuhi kebutuhan domestik dan ekspor. Kedua perusahaan ini juga telah berkolaborasi untuk menjalankan program frigate Angkatan Laut Spanyol di masa yang akan datang.

Sistem graphical user Interface (GUI) yang inovatif memberikan kemudahan dan modern. Adapun yang terbaru, DDF1555 penunjuk arah dengan pengintaian radio untuk pemakaian di luar, digabung dengan pencarian arah yang akurat beserta kapabilitas untuk memantau. Produk lainnya yang dipamerkan termasuk SDTR software untuk radio yang memberikan kontrol dan arahan, fleksibilitas operasional dan komunikasi yang terintegrasi di seluruh varian angkatan militer. Selain itu, software ini juga memberikan komunikasi data dan suara secara simultan ketika dipakai bersamaan dengan frekuensi dari kategori HDR lainnya. Rohde & Schwarz juga mendemonstrasikan kemampuannya di keamanan dunia maya, melindungi IT infrastruktur para perusahaan, dan pemerintahan terhadap mata-mata dunia maya atau penyergapan dunia maya.

Bernafas lega...

Avon Protection (Hall A, Stand APO12), pelopor pelindung pernapasan chemical, biological, radiological and nuclear (CBRN) ini sedang mengembangkan produk-produk baru untuk memenuhi semua kebutuhan perubahan seperti kondisi ancaman, termasuk CSPAPR; yang merupakan pelindung pernapasan generasi terbaru CBRN, bernama air purifying respirator (PAPR).

Didesain untuk dipakai di combination unit respirator (CUR), CSPAPR menggantikan user untuk merubah level perlindungan masker sesuai dengan ancaman yang ada, memberikan perlindungan lebih aman dan lama. User dapat mengganti mode perlindungan APR, PAPR dan SCBA (self-contained breathing apparatus) dan modularnya memberikan user menambah CSPAPR ke sistem yang sudah ada. AVON ST53 mengkombinasikan pelindung muka FMS3 dengan teknologi pernapasan yang lebih maju untuk memberikan tekanan udara positif untuk misi tertentu. Dikembangkan untuk memperbolehkan pergantian kondisi secepatnya dari tekanan udara negatif ke positif hanya dengan menarik tuas di depan masker.

Apabila sistem pernapasannya memerlukan tambahan perlindungan, Avon Shield memberikan APR, PAPR, SAR dan SCBA sistem pernapasan yang fleksible dengan kemampuan untuk penggunaan rod-style atau cable-style.

Untuk pasukan pengintai dan pasukan pelindung perbatasan, kamera thermal Argus P-Type mendeteksi suhu tubuh manusia dan barang hingga 1 mil.
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Teaming up for air defence

**BY DAVID DONALD**

Saab and PT Pindad (Hall D, Stands 095 and 043 respectively) are offering a new GBAD (ground-based air defence) system based on the Giraffe 1X radar and RBS 70 NG missile system to answer an Indonesian requirement, and to develop domestic industrial capability and expertise. Elements of the system, including a trainer/simulator, radar and multi-launcher, are on display on PT Pindad’s internal and external displays.

“The GBAD system with RBS 70 NG and Giraffe 1X is the next logical step for the Indonesian armed forces, which have deployed the earlier generations and understand the capabilities of the system well,” said Peter Carlqvist, head of Saab Indonesia. “With the focus on building local capability in partnership with PT Pindad, the GBAD system can keep Indonesia’s airspace secure for the next 30 or 40 years.”

Saab and PT Pindad’s proposal for a new system builds on a teaming arrangement under which the companies are working together to upgrade Indonesia’s existing VSHORAD (very short-range air defence) capability, which uses earlier versions of both RBS 70 and Giraffe. Indonesia acquired the original RBS 70 system and Giraffe 40 radar in the 1980s, and to answer short-term requirements they are being upgraded. Under the teaming arrangement, technology is being transferred to allow PT Pindad to undertake the work, which involves the replacement of five or six components in the RBS 70 Mk 2 missile, plus more than 100 check points in the update programme as a whole.

While this work has allowed the establishment of collaboration and the creation of industrial proficiency in Indonesia, the team is looking to future GBAD requirements in the country and wider region. The proposal includes the Giraffe 1X radar, a compact AESA (active electronically scanned antenna) radar with 360° coverage, as well as incorporating a C-RAM (counter rockets, artillery and mortars) capability. It can be deployed in fixed and mobile installations, typically mounted on a tactical vehicle.

At the heart of the proposal is the RBS 70 NG missile system, which employs an advanced thermal imaging sight to provide a true 24/7 capability. Its guidance system uses unjammable laser technology, and the operator remains in the loop throughout the engagement, allowing the use of manual controls to change aim-point or even to switch targets in flight.

With an 8km (5 mile) range and altitude coverage up to 5,000m, the RBS 70 NG can operate in all environments, including urban, and across a range of climate extremes. It can employ existing versions of the RBS 70 missile, including the Bolide missile that provides a fourth-generation all-target capability. The Bolide can engage targets such as small UAVs and cruise missiles, as well as more traditional air threats, including those manoeuvring aggressively. The missile has a shaped-charge, pre-fragmented warhead that can defeat armoured targets such as attack helicopters and close air support aircraft. It can also be employed against ground targets such as armoured vehicles.

RBS 70 NG has been designed as a modular system that allows it to be employed in several configurations. They include man-portable and ship or vehicle-mounted configurations, and a remotely-operated configuration that can provide fixed-site defence for strategic assets.

A complete GBAD solution employs an optimised command and control system, using accurate visual 2D and 3D cueing for the operator to achieve very short reaction times. The system includes a high degree of automated functions, such as target detection and auto-tracker, to reduce operator workload and reaction time.
South Africa’s privately owned Reutech Group (Hall A, Stand 185), part of Reunert, has a diversified portfolio of businesses specialising in electronics and defence, supplying local and export customers with advanced OEM products and services in the land, sea and air defence domains, as well as in the industrial and mining sectors.

The Fuchs brand remains one of the trusted names for the supply of electronic fuzes that meet ISO 9001:2008, STANAG design and safety requirements and comply with international military standards. Reutech Communications’ new generation range of military Secure Software Defined Combat Net Radios (CNR) include the latest manpack, vehicle and fixed installation transceivers, as well as dismounted soldier intercom systems (SRCS) and vehicle harness systems (IPCS). The new CNRs operate in HF, VHF and UHF frequency bands, providing a layered communication link.

Reutech Radar Systems is promoting a range of ground and naval radar systems, including the RTS 3200 FM CW Optronics Radar Tracker (FORT), a lightweight combined radar and electro-optic tracker for operation on smaller naval combat vessels, and the tripod-mounted RSR 904 NGADA short-range ground, sea and air surveillance radar, which can detect dismounted personnel or vehicles in a ground surveillance role, or watercraft or aircraft in sea or air surveillance modes.

The RSR 210N naval X-band air/sea surveillance radar and the RSR 906 coastal surveillance radar, as well as the RSR 150 staring sensor developed for use in the vehicle active protection system market, are also promoted. Reutech Solutions has its landward and naval Rogue remote control weapon platforms and the 20mm Super Sea Rogue.
Turkey’s leading missile house and defence contractor Roketsan (Hall A, Stand 043), an establishment of the Turkish Armed Forces Foundation, has come to Indonesia to present its wide portfolio of rocket and missile systems.

The company has recently achieved several important tests of its weapon systems as they mature towards service entry. Among them is the Hisar air defence missile, which is being developed in both low- and medium-altitude versions. Hisar employs imaging infrared terminal guidance, thrust-vectoring control, midcourse guidance via data link, and a dual-pulse rocket motor.

A number of successful test firings have been made of the Hisar-A low-altitude weapon, while the Hisar-O medium-level missile began firing tests in July. Both are said to be highly effective against fixed- and rotary-wing aircraft, UAVs, cruise missiles and air-to-ground missiles.

Also on show is the Teber, an INS/GPS kit that transforms a standard Mk 81/82 bomb into a precision-guided weapon.

Another air-launched weapon is the SOM, a stand-off missile that is now in Turkish Air Force service with F-16C/D Block 40s and F-4E-2020 Phantoms. The company has signed an MoU with Airbus Defence and Space covering the integration of SOM on the Eurofighter Typhoon.

Roketsan, in partnership with Lockheed Martin, has further developed the SOM-J version for internal carriage by the F-35 Joint Strike Fighter, plus external carriage by other types. Flight trials of SOM-J are due to begin from an F-16 in the first quarter of 2017, with serial production expected to start in the following year.

Last year, Roketsan completed development and qualification of the L-UMTAS laser-guided anti-tank/precision attack weapon, and first deliveries to the Turkish Armed Forces are due before the end of this year. The laser version is employed by the T-129 ATAK attack helicopter, and has also been fired from the Turkish Navy’s Sikorsky SH-60 Seahawk helicopters. L-UMTAS and the combat-proven Cirit laser-guided rocket, defined as the official missile systems of the T-129 ATAK, use the common designation characteristics that are able to combine both systems in the same configuration, enabling a more lethal effect.

In 2014, the UAE Air Force took delivery of the Cirit to arm its Iomax AT-802i/Archangel fixed-wing aircraft, which have fired the weapon during action in Yemen. The Cirit has also been integrated on to the Leonardo (formerly Selex ES) Falco UAV. Here at Indo Defence, Roketsan is highlighting Cirit’s land-based application with the new PMC (pedestal-mounted Cirit) system that can be installed on a high-mobility tracked or wheeled vehicle.

Cirit is an important element of two co-operation agreements signed with Airbus. The first covers integration onto the Airbus Helicopters’ H Force weaponisation programme for the H135M and H145M. The other, announced at Farnborough this year, covers collaboration in expanding the air-to-surface weapons capability of the Airbus Defence and Space C295W. Under the agreement, the two companies will work on the design and initial testing aspects of equipping the C295W to release Roketsan’s Cirit, L-UMTAS and Teber. The agreement will see the companies advancing the project to a pre-certification status, but would require a solid customer to proceed to certification.

Also being presented are the company’s anti-submarine warfare (ASW) rocket and launching system, and the multi-calibre, multi-barrel rocket launching systems for 107mm, 122mm and 300mm rockets.
Mission
The Project 11770E Serna air-cavity fast landing craft in wartime is designed for over-the-beach landing of combat and military tracked and wheeled vehicles, as well as forward assault units. In peacetime, the boat can be used to deliver equipment, cargo and troops to the points of the seacoast to a distance of 600 miles.

Features
The Project 11770E Serna landing boat has improved design and seaworthiness through the use of corrosion-resistant alloys, extruded sections and panels, and a powerful power plant. The boat is equipped with an integrated movement and facilities management system.

The feature of the Serna landing craft is that an air cavity, an artificial air gap with overpressure, is created under its bottom as it moves. The cavity isolates a large portion of the hull from contact with water, thus achieving a significant reduction in resistance and providing a speed of 30 knots, as well as reduced fuel consumption. It can transport cargo and equipment up to 45 tons at 30 knots in sea point up to 2 (at 27 knots in sea point up to 3). The sea-going capacity is limited by sea point 5.

Basic specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full displacement, t</td>
<td>105</td>
</tr>
<tr>
<td>Basic dimensions, m:</td>
<td></td>
</tr>
<tr>
<td>overall length</td>
<td>25.6</td>
</tr>
<tr>
<td>overall beam</td>
<td>5.8</td>
</tr>
<tr>
<td>midships depth</td>
<td>2.9</td>
</tr>
<tr>
<td>full draft</td>
<td>1.52</td>
</tr>
<tr>
<td>Carrying capacity, t</td>
<td>45</td>
</tr>
<tr>
<td>Main propulsion plant</td>
<td>two-shaft diesel unit consisting of two MS03-A3 diesels, 2x2,200 kW (2x3,000 hp)</td>
</tr>
<tr>
<td>Electrical power system</td>
<td>2 x DGR1A-16/1500 diesel-generators</td>
</tr>
<tr>
<td>Propulsion system</td>
<td>2 x four-bladed vented fixed-pitch propellers</td>
</tr>
<tr>
<td>Full speed in calm water, full displacement, knots</td>
<td>30</td>
</tr>
<tr>
<td>Cruising range with landing load of 45 tons and speed of 30 knots, n.m.</td>
<td>up to 600</td>
</tr>
<tr>
<td>Endurance, days</td>
<td>1</td>
</tr>
<tr>
<td>Complement</td>
<td>4</td>
</tr>
</tbody>
</table>

Rosoboronexport is the sole state company in Russia authorized to export the full range of defense and dual-use products, technologies and services. Rosoboronexport accounts for over 85% of Russia’s annual arms sales and maintains military-technical cooperation with over 70 countries worldwide.
German electronics company Rohde & Schwarz (Hall A, Stand 117) is demonstrating its comprehensive portfolio of integrated communications and radio reconnaissance solutions. The ARDRONIS solution for microdrone communications detection and disruption, presented for the first time in Asia, enables users to identify microdrone control signals early on, and locate the drone’s operator and disrupt the control link. It also offers the capability of integration into higher-order networked systems or flexible security systems.

Another highlight is NAVICS, a new VoIP-based switching system for naval communications that offers innovative technology and a state-of-the-art, intuitive user interface. This serves as a core component to deliver future-ready voice and data communications for all classes of ships. The system interconnects the onboard voice terminals and all other subsystems for internal and external communications via a uniform IP network. An intuitive graphical user interface (GUI) provides a modern and convenient means of operating the sophisticated system. Also new is the DDF1555 compact direction finder, which is at the heart of a full-featured manportable reconnaissance system for outdoor applications, combining accurate direction finding with wideband monitoring capabilities.

Other products on show are its SDTR software-defined tactical radio, which provides command and control, operational flexibility and integrative communications across the various branches of the armed forces. It additionally delivers simultaneous voice and data communications when used with waveforms from its HDR family. Rohde & Schwarz is also demonstrating its competence in cyber security, protecting IT infrastructures of companies and governments against espionage and cyber attacks.

Avon Protection (Hall A, Stand AP012), a leader in chemical, biological, radiological and nuclear (CBRN) respiratory protection, is continually developing new products to meet the constantly changing CBRN threat environment, including the CSPAPR, the newest generation of CBRN powered air purifying respirator (PAPR). Designed for use in combination unit respirators (CURs), the CSPAPR allows the user to change levels of protection dependent on the threat, providing increased duration on-target and safer operation. The wearer can seamlessly switch between APR, PAPR and SCBA (self-contained breathing apparatus) modes of protection and the modular methodology allows the user to add the CSPAPR to existing fielded systems. Avon’s ST53 combines the FM53 mask technology with an advanced modular breathing system to provide positive pressure SCBA and/or PAPR capability for specialist operations. It was developed to allow a fast response to changing operational conditions with the ability to switch between negative (filter) and positive (SCBA) pressure via a lever on the front of the mask.

If a breathing system is required in addition to respiratory protection, Avon’s hybrid breathing system, the Avon Shield, provides special operators with a flexible APR, PAPR, SAR and SCBA breathing system with the ability to use either a conventional rod-style or a cable-style cutting torch.

A Spanish industry team of Indra and Navantia has been contracted by Indonesian shipyard PT PAL for the upgrade of the Indonesian Navy (TNI-AL) Fatahillah-class corvette KRI Malahayati.

Under the terms of the €15.7 million ($18 million) contract, the two companies will upgrade the combat system on board Malahayati with new command, fire control and electronic warfare systems. The overall scope of supply includes Indra’s Rigel electronic support measures outfit, Navantia’s Dorna fire control director, and a variant of Navantia’s SCOMBA combat management system.

The PT PAL contract award is part of a business partnership initiative under which Indra and Navantia are working increasingly closely on both domestic and export pursuits. The two companies are already partnered on a number of programmes for the Spanish Navy’s future F110 frigate programme.
BY RICHARD SCOTT

Having grown South Korea’s indigenous capability for the design and development of sonobuoys, Meta Networks (Hall D, Stand 215) has begun deliveries of DIFAR (KAN/SSQ-53D(3) A1) passive sonobuoys to equip Republic of Korea Navy (RoKN) P-3CK Orion maritime patrol aircraft.

Sonobuoys are air-dropped expendable devices used to support anti-submarine warfare (ASW) operations. The DIFAR type is an A-size passive buoy that deploys a directional hydrophone to provide a bearing on received acoustic signals.

Meta Networks has been working on the in-country development of sonobuoy systems for several years, with early development testing undertaken in 2010. Approval for production of the locally produced KAN/SSQ-53D DIFAR buoy was received in May 2012, with product development completed in December that year.

According to data released by Meta Networks at Indo Defence 2016, the KAN/SSQ-53D buoy operates across a frequency range of 5-2,500Hz, and can be set to an operating depth of either 30m, 50m, 120m or 300m.

The first sonobuoy deliveries to the RoKN’s P-3CK force were made earlier this year. Meta Networks has disclosed that it is also working on the development of a surface ship ASW sonobuoy system. This would also include an acoustic processing subsystem and analysis software.
## Programme of events

Indo Defence, Indo Aerospace, Indo Marine 2016 Expo & Forum

Wednesday 2 November 2016

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.00 – 12.00</td>
<td>Opening Ceremony, by invitation Exhibition Tour</td>
<td>JIExpo Kemayoran, Hall C1</td>
</tr>
<tr>
<td>12.00 – 17.00</td>
<td>Exhibition open for trade visitors and professionals only</td>
<td>Halls A, B, D and F, and Outdoor Space</td>
</tr>
<tr>
<td>12.30 – 14.00</td>
<td>Official luncheon (by invitation only)</td>
<td>Hall C2</td>
</tr>
<tr>
<td>13.00 – 16.45</td>
<td>Technical Product Presentations</td>
<td>Theatres 1, 2 and 3, Hall B (see right)</td>
</tr>
<tr>
<td>14.00 – 15.00</td>
<td>Courtesy calls (scheduled appointments)</td>
<td>CC Room, Hall B and Mezzanine Floor, Hall D Levels 2 and 3</td>
</tr>
<tr>
<td>14.15 – 16.30</td>
<td>Live Product Demonstration</td>
<td>Outdoor Space (see below)</td>
</tr>
<tr>
<td>17.30 – 20.00</td>
<td>Exhibitor Reception</td>
<td>Pre-function Hall D</td>
</tr>
</tbody>
</table>

### Thursday 3 November 2016

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.00 – 18.00</td>
<td>Indo Defence 2016 Tri-Services Forum</td>
<td>Trademart Building, Semeru Room, 6th Floor</td>
</tr>
<tr>
<td>08.00 – 16.00</td>
<td>Indo Aerospace Seminar by IPI</td>
<td>Trademart Building, Bromo 1, 6th Floor</td>
</tr>
<tr>
<td>09.00 – 16.00</td>
<td>Indo Marine Seminar by NACE</td>
<td>Hall F, Seminar Room</td>
</tr>
<tr>
<td>10.00 – 13.00</td>
<td>Russian Pacific Fleet Site Visit</td>
<td>Sea Port Tanjung Priok Pier 2, shuttle and information at Trademart Building</td>
</tr>
<tr>
<td>10.00 – 17.00</td>
<td>Exhibition open for trade visitors and professionals only</td>
<td>Halls A, B, D and F, and Outdoor Space</td>
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<tr>
<td>10.45 – 17.00</td>
<td>Courtesy calls (scheduled appointments)</td>
<td>CC Room, Hall B and Mezzanine Floor, Hall D Levels 2 and 3</td>
</tr>
<tr>
<td>11.00 – 16.45</td>
<td>Technical Product Presentations</td>
<td>Theatres 1, 2 and 3, Hall B</td>
</tr>
<tr>
<td>11.30 – 16.30</td>
<td>Live Product Demonstrations</td>
<td>Outdoor Space</td>
</tr>
<tr>
<td>19.00 – 21.00</td>
<td>Gala Dinner (invitation only)</td>
<td>Hotel Borobudur Ballroom</td>
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### Friday 4 November 2016

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAMME</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.00 – 16.00</td>
<td>Seminar Indo Marine by NACE</td>
<td>Hall F, Seminar Room</td>
</tr>
<tr>
<td>10.00 – 13.00</td>
<td>Russian Pacific Fleet Site Visit</td>
<td>Sea Port Tanjung Priok Pier 2, shuttle and information at Trademart Building</td>
</tr>
<tr>
<td>10.00 – 17.00</td>
<td>Exhibition open for trade visitors and professionals only</td>
<td>Halls A, B, D and F, and Outdoor Space</td>
</tr>
<tr>
<td>10.45 – 17.00</td>
<td>Courtesy calls (scheduled appointments)</td>
<td>CC Room, Hall B and Mezzanine Floor, Hall D Levels 2 and 3</td>
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<tr>
<td>11.00 – 16.45</td>
<td>Technical Product Presentations</td>
<td>Theatres 1, 2 and 3, Hall B</td>
</tr>
<tr>
<td>11.30 – 16.30</td>
<td>Live Product Demonstrations</td>
<td>Outdoor Space</td>
</tr>
</tbody>
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## Sea, Air and Land Live Demonstration Schedule

Wednesday 2 November 2016

<table>
<thead>
<tr>
<th>TIME</th>
<th>NAME OF EXHIBITOR</th>
<th>THEME OF DEMONSTRATION</th>
<th>MARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.15 – 13.30</td>
<td>TNI AD</td>
<td>Gaz Tiger Gunner (4x4 tactical vehicle)</td>
<td>Land Demo</td>
</tr>
<tr>
<td>13.45 – 14.00</td>
<td>TNI AL</td>
<td>Microdrone MD4-1000</td>
<td>Air Demo</td>
</tr>
<tr>
<td>14.15 – 14.30</td>
<td>TEHNIKA INA</td>
<td>Mural and Laron (UAVs)</td>
<td>Air Demo</td>
</tr>
<tr>
<td>14.45 – 15.00</td>
<td>BHINNEKA DWI PERSADA</td>
<td>LRAD, Elide Fire, LINE-X</td>
<td>Land Demo</td>
</tr>
<tr>
<td>15.15 – 15.30</td>
<td>GLOBAL INOVASI</td>
<td>LAND DEMO</td>
<td>Air Demo</td>
</tr>
<tr>
<td>15.45 – 16.00</td>
<td>INFORMASI INDONESIA</td>
<td>LAND DEMO</td>
<td>Air Demo</td>
</tr>
<tr>
<td>16.15 – 16.30</td>
<td>GARDA INTI WIL TAR</td>
<td>LAND DEMO</td>
<td>Air Demo</td>
</tr>
<tr>
<td>16.15 – 16.30</td>
<td>APDI</td>
<td>LAND DEMO</td>
<td>Air Demo</td>
</tr>
</tbody>
</table>

### Technical Product Presentations

**THEATRE 1, HALL B**

13.00 – 13.45
- **Skylar products**, presented by Ryan Mc cure, Kenindo Technology for Skylar Ltd
14.00 – 14.45
- Really know what is powerful? Naval mines and multi-influence range systems for submarines and ships, presented by Julian Valdes, head of the naval mines and range stations line of business, SAES – Sociedad Anónima de Electrónica Submarina
15.00 – 15.45
- The secret of lightweight armour and why it won’t kill you, presented by Ocean Zheng, general manager of Winyarn Co Ltd, Beijing Winyarn High Performance Fiber Co Ltd

**THEATRE 2, HALL B**

13.00 – 13.45
- Emirates Special Vehicle – an introduction to the company and its product/services portfolio, presented by Ameer Deen, Emirates Special Vehicle
14.00 – 14.45
- Siemens PLM software for the aerospace industry, presented by Siemens Industry Software Pte Ltd Digital Factory Division

**THEATRE 3, HALL B**

13.00 – 13.45
- 21st century decon challenges, presented by Alessandro Costagliola Di Fiore, Cristanini
16.00 – 16.45
- Dillon Aero, presented by Mr Adiyanto, Armetall Sistema

**THEATRE 4, HALL B**

13.00 – 13.45
- The connection of RF microwave, presented by Michael Chai, Emerges Pte Ltd
14.00 – 14.45
- ToughBook mobile solutions for mission critical, presented by Azrizain Zainalabidin, Panasonic System Solutions Asia Pacific

**THEATRE 5, HALL B**

13.00 – 13.45
- Tactical Combat Robot pembicara Shahar, presented by Shahar, MJA
16.00 – 16.45
- Tanfoglio, Komodo and Meopta, presented by Massimo Tanfoglio, Danan Triharjo and Martin Ondracka dan Zdenek Pavel, Tanfoglio Indonesia Jaya
THE 8th INDONESIA'S NO.1 TRI-SERVICE DEFENCE INDUSTRY EVENT

7 - 10 November 2018
Jakarta International Kemayoran
Jakarta - Indonesia

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