

GRiD



CGI

GRiD Case Study: Using rugged computers on small boats

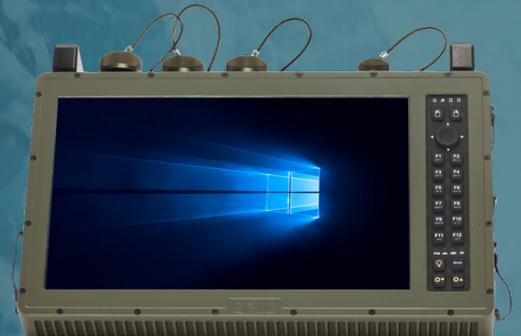
Small boats and high-speed craft used by the military – an example being rigid inflatable boats (RIBs) – have to survive extreme conditions during operations, including impacts from operating in rough seas and the effects of a corrosive sea environment. Not only does the boat have to be built extremely well, but so too does the computer systems on board that will enable personnel to carry out various missions.

Navies and security forces around the world operate specialist small boats to conduct a variety of missions and operations including: border protection; anti-smuggling; anti-piracy; fisheries protection; and surveillance operations. These vessels are highly-durable, allowing them to operate in extreme conditions such as rough sea states while remaining fast and manoeuvrable to intercept threats.

The vessels themselves are built to last, and that means that the various equipment fitted on board also needs to be equally rugged. To carry out missions effectively, these small boats have to be outfitted with a variety of sensors and electronic systems that give the operators onboard situational awareness and the means to detect – and sometimes neutralise – potential threats. This can include radars, electro-optical infra-red (EOIR) cameras, and remote weapon systems, which will all integrate with command and control (C2) software and mission systems accessed via a computer console.

GRiD Defence Systems has a proven history supplying its rugged, military-grade computers for use on small boats, including RIBs. By meeting a number of rugged standards, including DEF STAN 00-35, MIL-STD-810 and IP67, our products can withstand the harsh environments that are faced when out at sea. This includes the harsh impact shocks created by moving over waves at high speeds, as well as being sealed to protect against the salt environment that is highly corrosive to materials and electronics.

GRiD laptops and tablets are also highly configurable, allowing users to specify unique requirements that ensure ease of integration into the platform itself.



Solution – an example of GRiD computers on naval craft

GRiD's GRiDCASE 2515 and GRiDCASE 2530 rugged tablets have been selected by the UK-based company CGI to be fitted onto RIB vessels for use by military forces. In this example, the tablet integrates within a console that allows crew to access CGI's OpenSea360, an open architecture fully integrated Mission System. GRiD's tablets and laptops adhere to open standards and whatever operating system the customer requires to run its software can be installed.

In this console configuration, only the display of the tablet is visible to the operator and exposed to the elements. The GRiDCASE 2515 and GRiDCASE 2530 are fitted with industrial-grade resistive touchscreens, which are not affected by rain and other wet conditions and so are perfect for conditions at sea.

Resistive touchscreens – unlike capacitive touchscreens found on most commercial smartphones and tablets – can also be used with thick gloves, which are commonly worn by naval personnel operating small boats. These screens also have excellent Electromagnetic Compatibility (EMC) characteristics, meaning that other electrical systems will not affect it and it will not affect other systems either. It is also possible to supply our tablets with no touchscreen functionality with peripherals such as external trackballs or on-bezel buttons used instead, which is sometimes a better option when crew are being bounced around in rough conditions.

Another advantage of the GRiDCASE 2515 and GRiDCASE 2530 resistive displays is the excellent visibility that they have when operators are wearing night vision goggles (NVGs), which these days are standard for night operations. Operators do not have to constantly remove their NVGs to look at a screen, which allows them to quickly switch between using the console and looking around, ensuring they retain overall situational awareness. The displays also have a dim to black functionality, which is especially important when it comes maintaining stealth and not giving away your position due to excessive light signatures.

In response to a design change request from CGI, GRiD engineers designed a specific configuration for the GRiDCASE 2515 and GRiDCASE 2530 so they could be easily installed into small boat consoles. This saw the cables and interfaces being rear-mounted at the back of the display, rather than the usual top or bottom mounting that is found on most GRiD computers. This design modification provided a smaller footprint and significantly eased integration and as a result, accelerated the install time for the computers which is key on all defence programmes as delays must be kept to a minimum.

On top of this, the GRiDCASE 2515 and GRiDCASE 2530 tablets are extremely rugged and are designed and built specifically for very harsh environments, beyond what commercial-off-the-shelf rugged systems are capable of. This is a critical requirement for small craft that can be violently thrown around by mother nature. As an example of this, our tablets can survive significant shocks and impact, and the GRiDCASE 2530 has been put through a gruelling series of tests that includes 26 drops from a height of 48" on every side, face and corner.

This high durability is achieved by using a fully-sealed aluminium chassis designed and machined in the UK, which ensures the tablets pass a number of tough environmental requirements that are set out in IP67, DEF STAN 00-35 and MIL-STD-810 documents, including water ingress and salt fog.

Conclusion

GRiD tablets are trusted by militaries across the world and we are proud that this includes naval forces operating small craft on various missions. As with all military forces where failure is not an option, these Operators require the best and most rugged equipment to carry out their mission and ensure it is a success. Tablets such as the GRiDCASE 2515 and GRiDCASE 2530 provide the optimum solution to personnel operating small boats and high-speed craft and GRiD's engineers work closely with the customer to ensure that all requirements are met.

