



Graphics at 25,000 feet

Goma Elettronica SpA uses Matrox P690 graphics cards to drive dual-monitor avionics workstation for data management visualization aboard a Falcon jet.

By Irene Gozzo, Goma Elettronica SpA, and Camille Caron, Matrox Graphics, Inc.



Goma incorporates the P690 graphics card into a rugged, custom-designed, 5U rackmount chassis industrial PC.

Images courtesy of GOMA Elettronica SpA

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— Irene Gozzo,
Sales & Marketing Manager,
Goma Elettronica SpA

About GOMA

Goma Elettronica SpA is a leading embedded system integrator targeting industrial, defense and telecom markets. The solutions they design combine commercial-of-the-shelf (COTS) products from selected international partners with original electronic building blocks and mechanics they produce themselves. Their business model is quite unique, since they deal with custom equipment manufacturing and standard products distribution at the same time. All products they deliver can be tested in their in-house laboratory when it comes to shock and vibrations, temperature and humidity, EMC emissions and thermal issues.

The Challenge

Goma Elettronica SpA was selected by an important international corporation to design and deliver a dual-monitor avionics graphics workstation to be installed in a Falcon aircraft for mission data management visualization. Of course, all avionics equipment must meet rigorous standards, so the graphics workstation had to be qualified according to RTCA/DO-160C, MIL-STD-461E, and MIL-STD-810 specifications to ensure it would operate at altitudes up to 25,000ft. Since the customer mandated strict technical requirements, Goma knew they would need to source components that addressed performance, dimensions, weight, power dissipation, and product life availability issues.

“Designing a system to operate in an aircraft environment is a challenge because of the stringent rules,” claims Irene Gozzo, Sales & Marketing Manager, GOMA Elettronica SpA. “Once the unit is tested, you cannot change the hardware specifications, so we needed to select stable products with long life cycles.”

To drive the dual monitor configuration of this aircraft workstation, Goma needed a graphics card that offered both good graphics performance with the added requirement of passive heat dissipation and long life.



Matrox M-Series powered workstations help operators manage railway and other mission critical systems.

The Solution

Goma searched for a graphics solution that met these requirements, and found that the Matrox P690 graphics card fit the bill perfectly. With ultra-low power consumption, fanless cooling, and unified display drivers for easy deployment across multiple systems, the P690 is ideally suited for mission critical applications such as avionics. Further, this graphics card builds upon the reliability, stability, and features of the proven P-Series product line, making it an ideal choice for use in long-life environments.

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Matrox offers a broad portfolio of products designed for the specific requirements of process automation, rail management and other mission critical systems. Due to the stability and performance, and compatibility of the Matrox product range, Goma has also incorporated Matrox M-Series graphics cards into train control installations, and well as Extio remote graphics units into their industrial PCs.

“With form factors ranging from PCI to PCIe x1 and PCIe x16 across many product families, Matrox solutions are compatible with a variety of specialized systems,” states Gozzo. “This, plus display drivers that offer industry-leading capabilities, with the ability to support multi-board configurations with up to eight displays, provides us many options when designing Goma Elettronica Industrial PCs.”

The Result

The system Goma designed consisted of a rugged 5U rackmount chassis with a PICMG 1.3 passive backplane architecture and a Core 2 Duo engine. A RAID configuration was installed, together with media and peripherals I/O. The installed Matrox P690 card was installed to drive the required dual-head graphic engine, offering both analog and digital monitor output capabilities. The Matrox P690 cards were easy to install, and Goma was pleased with the document that shipped with the cards, and the support they received. The unit has been successfully tested, and deployed within the aircraft.

For More Information

Matrox products are ideal for mission critical environments that require high stability and low heat emissions. Contact Matrox Graphics to learn more: www.matrox.com/graphics

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Matrox Graphics offers a wide range of specialized graphics solutions for professional markets such as security, finance, digital media, medical imaging, and enterprise computing. For more information about the entire Matrox Graphics product line, visit www.matrox.com/graphics.

To locate the local office nearest to you, visit www.matrox.com/graphics/contact. For product support, contact your Matrox representative or visit www.matrox.com/graphics/support.

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