



Marelli Pro and Elite Platforms

Insight Pack 2
Electronics

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ABSTRACT

As automakers shift to software-driven and electric vehicles with advanced features, Marelli empowers engineering teams to bring pioneering, cost-contained innovations into series production by leveraging modular, high-tech concepts.

Building on pre-developed and validated technologies, Marelli's Pro and Elite platforms facilitate rapid roll-out across trims and model lines, providing a comprehensive portfolio of modular hardware and software features and solutions spanning Lighting, Electronics, Displays, Suspension and Propulsion.

Leveraging the purpose-built foundations of the Lean platform, the Pro platform introduces upscaled innovation for mainstream models, while the Elite platform delivers cutting-edge performance and design freedom for premium and luxury vehicles.

Our comprehensive portfolio papers detail the distinct advantages of each Marelli Pro and Elite platform—Pro and EliteLight, Pro and EliteZone, Pro and EliteCore, ProConnect, ProDisplay, Pro and EliteHorizon, EliteRide, and ProEnergy.

This second insight pack provides an in-depth focus on Pro and EliteZone, Pro and EliteCore, ProConnect, ProDisplay, Pro and EliteHorizon.



HARDWARE PLATFORMS INTRODUCTION

Aligning innovation with market demands is central to Marelli's strategy. Today, our modular hardware platforms underpin this strategic model, enabling automakers to rapidly address specific requirements across tiered market segments with high growth, high-market share products.

Leveraging deep cross-domain expertise to deliver integrated or standalone solutions at speed, Marelli's scalable platforms streamline development, optimize investment and support more sustainable vehicle architectures.

Developed to offer greater modularity, each platform targets up to 70% reuse of subsystems and components, significantly compressing R&D timelines and mitigating the risks of clean-sheet designs, while accelerating time to market.

Marelli rapidly advances concepts to the minimum viable product stage and co-engineers with OEMs to introduce future-proof features and functionalities.

As a result, automakers gain a technological edge and the agility to act as first movers, seizing early market share.

In addition to hardware, Marelli has developed software platforms that include standalone, decoupled software applications, as well as software-enabled tools and features that drive Software-Defined Vehicles (SDVs).

This integrated approach further fosters co-creation opportunities with automakers and expands personalization options for buyers.

Tailored to fulfill the diverse needs of different vehicle segments and buyers, Marelli's hardware platforms deliver significant competitive advantages, with scalability, cost efficiency, flexibility and reduced timeframes that help automakers get to market fast.

**Platform-powered
innovation: Accelerating
your time to market**

A TIERED SYSTEM: LEAN, PRO AND ELITE

Marelli's hardware platforms are structured around three scalable tiers – Lean, Pro and Elite. Each is designed to offer broad coverage across market segments while providing in-depth capabilities across various vehicle systems. With an emphasis on scalability, this model offers flexible, pre-engineered components that allow automakers to efficiently leverage technology without starting from scratch.

Lean is engineered for base trims, entry-level vehicles and value-driven brands. Its fit-for-purpose technology focuses on affordability, sustainability and speed. Lean emphasizes component simplification, reduced development time and design for manufacturing.

Pro puts the focus firmly on scalability. It is Marelli's most versatile and adaptable platform. It targets electric vehicles and mainstream vehicles that offer unique features beyond their class. This approach includes up-scaling well-established innovations from our Lean platform, or value-optimizing high-end features developed for premium vehicles. With the broadest range of customization and feature options, Pro is engineered to meet diverse consumer preferences and budgets across a wide array of vehicle segments.

Elite represents the pinnacle of Marelli innovation. A cycle of continuous investment and development keeps Marelli at the forefront of technological advancement, delivering industry-first products that set new benchmarks. As a result, Elite combines sophisticated features and high-content technology to meet the demands of tech-savvy end users and the most premium vehicle brands in the market.



Pro and Elite platform

Marelli's Pro and Elite platforms introduce advanced levels of feature sophistication and performance. Co-created with OEMs for mainstream models, EVs, and luxury lines, they balance next-generation functionality with targeted efficiency across components, wiring, energy management, manufacturing, and assembly.

Our Pro platform targets the point where feature sophistication, software content, and system integration begin to exceed entry-level architectures, frequently delivering innovative alternatives to state-of-the-art technology, offering much of their performance at a greatly reduced cost.

Our Elite platform pivotally balances groundbreaking innovation with a made-for-manufacturing mindset. Whether through Marelli-owned tooling, plug-and-play compatibility with existing vehicle architectures, or simplified assembly and validation processes, Elite platform solutions are engineered from the outset for series-production viability.

Each platform is founded on homologation-ready technology and remains highly adaptable to individual vehicle programs. Crucially, Pro and Elite platform technologies can be scaled and combined according to program needs, giving automakers the freedom to deploy advanced solutions at the pace and level best suited to each vehicle line.

Key outcomes include:

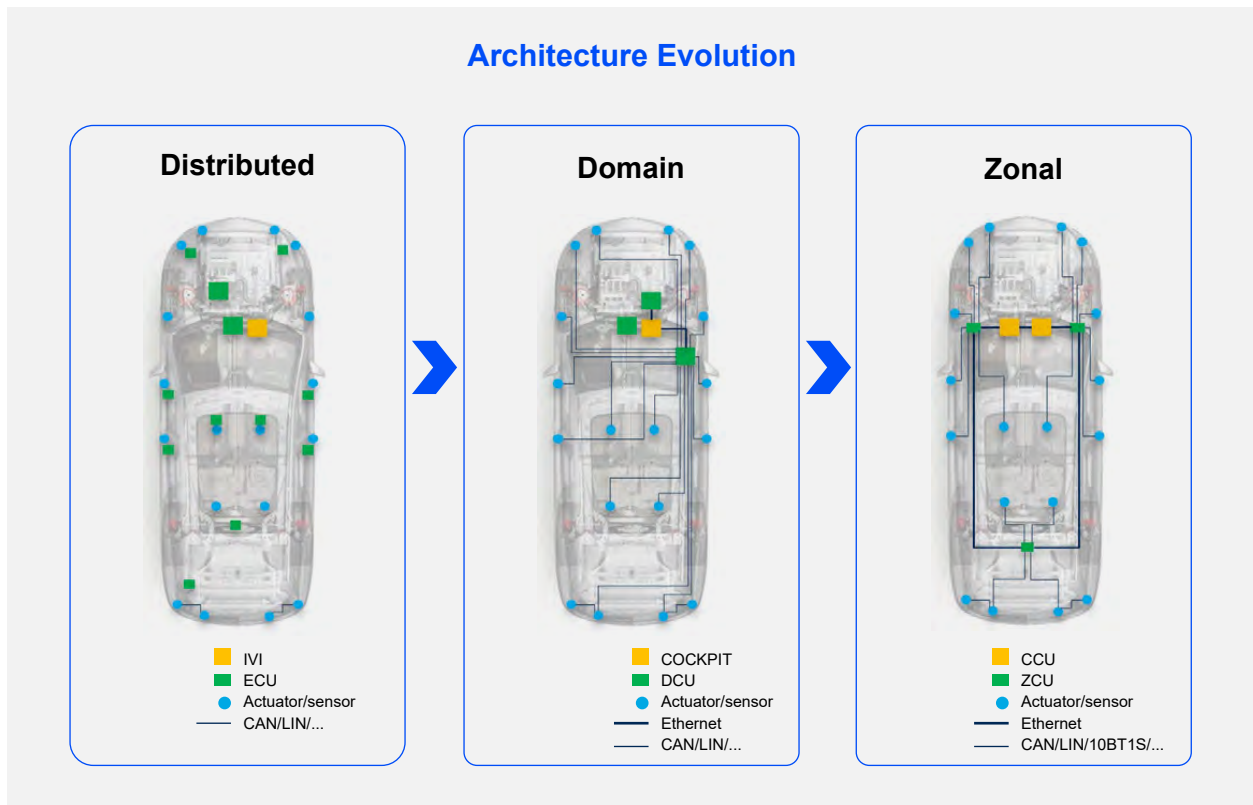
- More sophisticated features with a simplified architecture
- Faster time to market from pre-developed, production-mature foundations
- Flexibility to adapt to program-specific design, packaging and performance requirements
- Reduced manufacturing and assembly effort through consolidation of components, ECUs, modules and wiring
- Scalable, software-defined capability with Over-the-Air (OTA) upgrades
- Improved efficiency and sustainability through intelligent system design
- Architectural capacity to evolve functionality without major re-design
- Production-ready innovation – including plug-and-play compatibility, Marelli-owned tooling and homologation validation

THE PRO AND ELITE PLATFORM PORTFOLIO (Insight pack 2)

Pro and EliteZone

Leveraging expertise developed since its first zonal technologies debuted in 2022, Marelli’s tiered LeanZone, ProZone and EliteZone platforms support the transition to centralized E/E architectures and the Software-Defined Vehicle (SDV) through modular, scalable designs that accelerate time to market and adapt to evolving OEM requirements.

All three platforms draw on Marelli’s market-leading position in vehicle electronics, system integration and unrivaled cross-domain expertise to consolidate multiple vehicle functions into geographic zones. Each zone is connected to the vehicle network via an Ethernet backbone link for data transmission. This approach reduces vehicle weight, cost and system complexity through shorter, more localized CAN/LIN lines and up to 75% fewer ECUs, while enabling higher-bandwidth and lower-latency communication across the network.

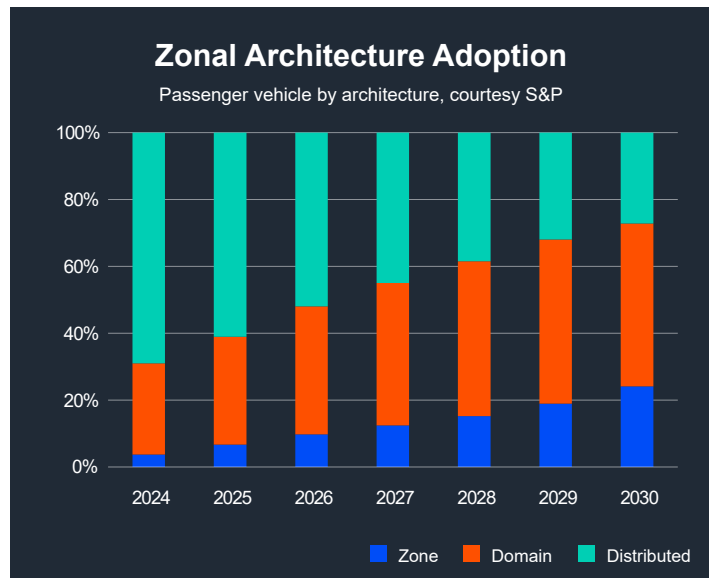


Additionally, the Marelli Advantage platform features a portfolio of over 50 stand-alone software applications — available or in development — that support a wide range of vehicle control functions, offered independently of hardware.

While the entry-level LeanZone supports an initial step into zonal architectures through consolidation of complementary domains such as body and (e-fuse-based) power distribution, ProZone and EliteZone introduce a fundamentally different software-defined architecture. With significantly higher processing capability and hypervisor-enforced domain isolation, they enable safety-critical and non-safety-critical workloads from multiple domains to run in parallel within the zone.

Together, ProZone and EliteZone play a critical role in managing the growing complexity of modern E/E architectures in highly differentiated vehicles, where electrification, connectivity, advanced driving assistance and software-defined functionality place increasing challenges on legacy architectures.

Co-creation is central to Marelli's zonal architecture philosophy. As an increasing number of domains are consolidated within zones, Marelli welcomes a collaborative approach across businesses and partners to meet common objectives. With S&P Global forecasting that around 22% of all vehicles will adopt zonal architectures by 2030, ProZone and EliteZone are ideally positioned to support this large-scale transition.



ProZone

Built on Infineon AURIX™ TC48x/TC4x microcontrollers, ProZone is Marelli's Zone Control Unit (ZCU) that provides the processing capacity and safety mechanisms to manage up to three mixed domains simultaneously within the zone. The platform combines MCU-integrated Ethernet capability, including low-latency 10BASE-T1S, CAN and LIN for in-zone communication.

Virtualization enables the isolation and simultaneous operation of safety-critical and non-safety critical operating systems up to ASIL D standards. A Data Routing Engine (DRE) manages deterministic, low-latency data exchange between domains, edge nodes and the wider vehicle network, supporting the execution of extremely time-sensitive applications.

ProZone also introduces Remote Control Protocol (RCP), which allows real-time control of sensor and actuator logic to be centralized in the ZCU or even in the Central Computing Unit (CCU) rather than distributed over multiple satellite MCUs. Proven through safety-critical applications such as anti-pinch control, which requires end-to-end latency of approximately two milliseconds, RCP enables the implementation of simplified, MCU-free modules, with sensing and actuation retained locally.

Additional latency-dependent functions located in the same area can also migrate to the zone. For instance, audio amplification can be consolidated alongside anti-pinch control in the zone, with virtualization maintaining the appropriate isolation between software stacks.

By reducing ECU count, centralizing software, isolating domains sharing the same ZCU and enabling them to be updated discretely over the air, ProZone optimizes system integration and lifecycle management while reducing E/E architecture complexity.



Need to know

- 3 domains
- Up to 3 kDMIPS
- 100MB/1000MB Ethernet
- 20 CAN & LIN
- Hypervisor
- Up to ASIL D
- Remote Control Protocol (RCP) client for MCU-free edge nodes
- Audio Video Bridging (AVB)

EliteZone

EliteZone is Marelli's most advanced ZCU, scaling our ProZone concept to deliver greater processing capability and higher communication capacity, while the dedicated Ethernet switch introduces significantly higher bandwidths.

Designed around state-of-the-art Infineon AURIX™ TC4Dx/TC4Zx microcontrollers, EliteZone supports up to four mixed domains running simultaneously within the zone. Hypervisor-based virtualization ensures robust partitioning between operating systems, enabling the coexistence of safety-critical and non-safety-critical workloads to ASIL D certified standards.

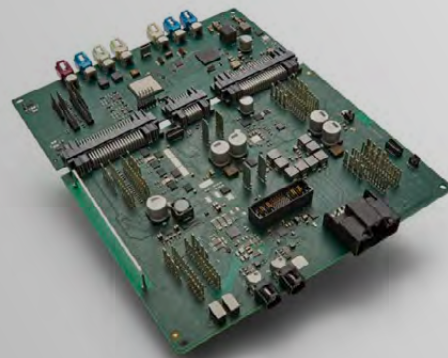
With up to 6 kDMIPS of processing performance, dual-port Gigabit Ethernet and additional Input/Output (I/O) capacity, EliteZone builds in additional headroom for higher feature integration and more demanding real-time applications within a single ZCU.

Crucially, EliteZone integrates dedicated Ethernet switch hardware that operates independently of the zonal MCU.

This enables higher bandwidths, more ports, and lower power consumption compared with MCU-based Ethernet, particularly as the number of connected devices increases.

By simplifying the most complex electrical architectures in feature-rich luxury vehicles, while optimizing performance and network coordination, EliteZone represents the ultimate expression of Marelli's zonal architectures.

EliteZone: Zone Control Unit



Need to know

- 4 domains
- Up to 6 kDMIPS
- 2 port GB Ethernet with switching
- 20+ CAN & LIN
- Hypervisor
- Data Routing Engine
- Up to ASIL D
- Remote Control Protocol (RCP) client for MCU-free edge nodes
- Audio Video Bridging (AVB)

Pro and EliteCore

Marelli pioneered the first series-production integrated cockpit solution in 2020, enabling automakers to manage both digital instrument clusters and In-Vehicle Infotainment (IVI) on a single platform.

Building on this experience, Marelli created the modular Core platform family. Today, the Core line-up of Central Computing Units (CCUs) – LeanCore, ProCore and EliteCore – leverages this foundation, together with learnings from millions of units manufactured to date, to deliver off-the-shelf solutions for software-defined vehicles.

Built on Marelli's fifth-generation E/E architecture – and offering capability far beyond entry-level LeanCore – Pro and EliteCore support multiple displays and cameras with advanced graphics, superior responsiveness, AI-enabled applications and consistent performance in demanding thermal conditions.

A high-performance CCU consolidates ECUs and streamlines hardware, the Board Support Package and middleware into a single system-on-chip (SoC), managing multiple operating systems through hypervisor technology to ASIL B safety standards.

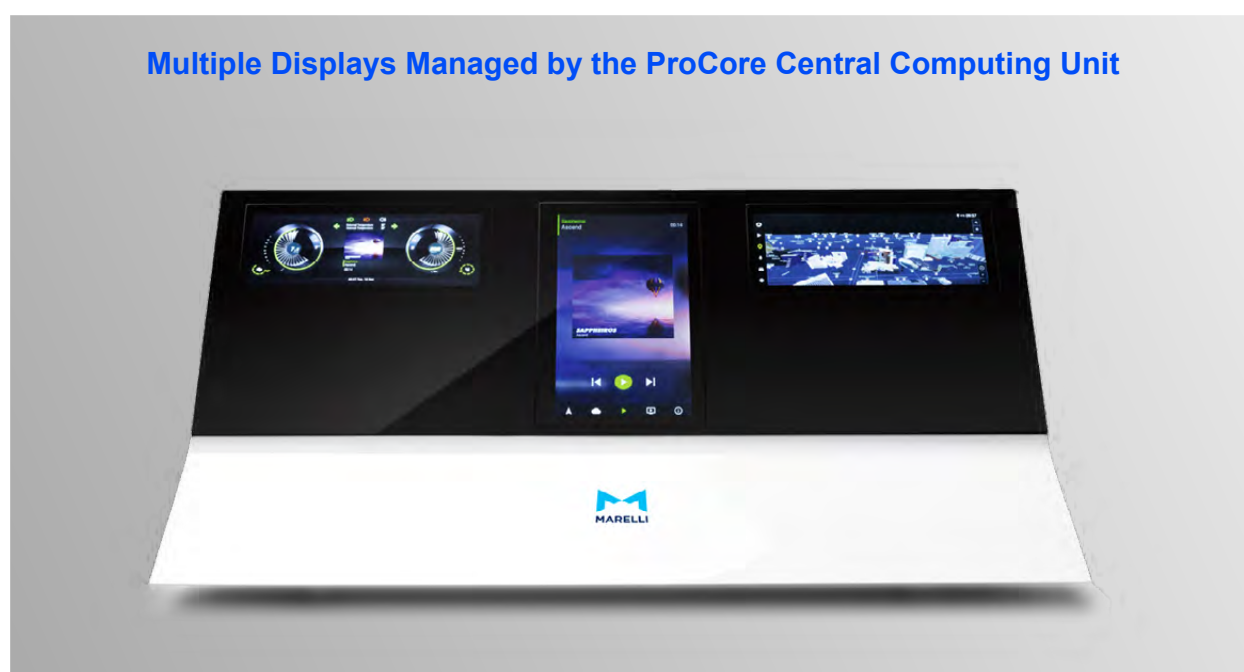
Both architectures enable cloud connectivity to integrate additional services and applications. Phone mirroring via Android Auto™ and Apple CarPlay™ is also supported.

ProCore

ProCore balances high performance with cost-efficiency and is ideal for EVs and vehicles prioritizing sustainable innovation. Unifying multiple ECUs in a single controller, it can manage up to four displays and five cameras – including driver monitoring systems.

A fourth-generation Qualcomm Technologies 7255 system-on-chip (SoC) provides higher Central Processing Unit (CPU) and Graphics Processing Unit (GPU) capability to support advanced display management and software functionality beyond that of LeanCore. An embedded Neural Processing Unit (NPU) introduces AI-driven functions such as natural-language recognition and driver monitoring, with headroom for further AI-enabled features without costly hardware redesigns.

The NPU allows the CPU to devote more capacity to the resource-intensive tasks of additional screens. With the option to relocate audio DSP processing into ProCore and distribute audio into the zones, it also enables more sophisticated control of advanced audio features and the capability to update them over the air.



Need to know

- Up to 4 displays and 5 cameras
- Qualcomm Technologies 7255 processor
- 126 kDMIPS with 840 GFLOPS
- Integrated audio DSP
- Hypervisor
- 3 CAN
- ASIL B

EliteCore

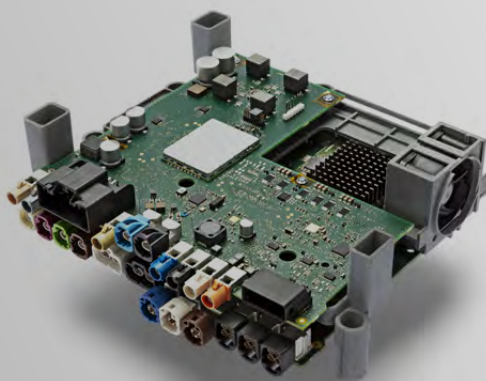
EliteCore stands at the forefront of zonal architectures, combining industry-first innovations with unparalleled computing capabilities and next-generation in-cabin technology experiences for luxury and premium brands.

A state-of-the-art Qualcomm processor with 230 kDMIPS and 6 TFLOPS – more than double the feature capability of ProCore – supports up to 12 displays and 12 cameras, providing performance for richer graphics, higher-resolution rendering and greater synchronization of workloads without compromising responsiveness.

EliteCore is designed to host a wider set of ADAS level-2 functions, including enhanced driver monitoring, pedestrian and cyclist detection, and advanced surround-view visualization. More sophisticated GPU and NPU hardware support the greater processing demands of these applications while maintaining stable performance under multiple heavy workloads and thermal stress.

Leading the way in cockpit-domain consolidation, EliteCore has the capacity to manage the most advanced in-cabin infotainment systems and support the continued evolution of software-defined vehicle technologies.

EliteCore: Central Computing Unit



Need to know

- Up to 12 displays and 12 cameras
- Qualcomm Technologies 8295 processor
- 230 kDMIPS with 6 TFLOPS
- Integrated audio DSP
- Hypervisor
- 3 CAN
- ASIL B

ProConnect

Marelli's ProConnect platform is a cost-optimized, scalable Connected Cockpit Module designed to integrate with centralized and zonal E/E architectures. It consolidates cluster, IVI, 4G/5G telematics, e-Call and a Driver Monitoring System into a single module, supporting four displays and six cameras while reducing system complexity and cost. ProConnect provides WiFi, Bluetooth and smart-mobile connectivity, with Marelli pioneering the integration of Affordable 5G RedCap – a telematic solution offering a streamlined version of 5G at a similar cost point as 4G.

A fourth-generation Qualcomm 7255 SoC enables features normally associated with more expensive processors – such as 3D surround-view monitoring – by optimizing software only where it delivers measurable benefits. A customizable daughterboard allows additional interfaces and technologies including Affordable 5G RedCap to be added without redesigning the main SoC board. This significantly reduces engineering expenditure for new vehicle programs and supports the scalability of more advanced features from a common base.

Partnerships with software providers and cloud platforms support software-defined architectures by enabling expanded feature sets and the capability to update them throughout the vehicle lifecycle.

ProConnect also contributes to faster cycle times, lower weight and reduced Bill of Materials (BoM) costs through fewer wiring harness connection points and ECUs.

The result is advanced connectivity and interactive in-cabin experiences with reduced cost, streamlined E/E architectures and support for future scalability.



Need to know

- Qualcomm Technologies 7255 processor
- 120 kDMIPS with 0.9 TFLOPS
- Customizable daughterboard
- Optional Affordable 5G RedCap
- Up to 4 displays and 6 cameras
- WiFi, Bluetooth and LTE connectivity
- Faster cycle times, lower weight and reduced BoM

ProDisplay

ProDisplay supports industry trends toward larger, slimmer, and more capable automotive infotainment and cluster displays. These displays integrate seamlessly with the high-technology, minimalistic designs of today's premium EVs and differentiated vehicle interiors.

Developed on scalable miniLED backlight technology with full-array local dimming, ProDisplay significantly improves the visual clarity, efficiency and packaging of conventional edge-lit LED solutions, while offering an affordable and durable alternative to the slimline designs and high optical performance of OLED.

ProDisplay supports a wide range of screen sizes and formats, from compact central displays to pillar-to-pillar solutions, with the flexibility to integrate curved surfaces and reduced-bezel concepts.

Full-array local dimming is central to ProDisplay's consistent visual performance. By selectively controlling backlight zones, it enhances perceived contrast and color depth, improving legibility in bright sunlight and at different viewing angles, while supporting effective halo management of high-contrast content.

Local dimming also minimizes partial panel illumination when the display is inactive, enabling a seamless black-on-black transition between the screen area and surrounding glass for a more sophisticated appearance.

By dynamically dimming or switching off backlight zones, ProDisplay supports improved power efficiency compared with continuously illuminated edge-lit solutions, alongside robust thermal management. Optional capabilities include Hidden Display and Display Privacy.

Engineered with an optimized backlight unit architecture and scalable deployment of the MiniLED backlight array, ProDisplay balances advanced optical performance with the cost control to support mainstream and premium vehicle programs.



Need to know

- MiniLED backlight full-array local dimming
- Slimline screen with full black appearance when inactive
- High brightness and contrast with deep color perception
- Improved viewing angles and sunlight visibility versus edge-lit LED
- Effective halo management
- Lower power consumption (compared to edge-lit backlight solutions)
- Extended lifetime and higher performance stability (compared to OLED)
- Brightness ≥ 1000 nits
- Contrast ratio 30,000:1
- Resolution 2560 x 1440

Pro and EliteHorizon

Marelli's HorizonView portfolio unites elements of conventional Head-Up Displays (HUDs) and digital screens into a single, integrated solution that presents information in the driver or passenger field of view.

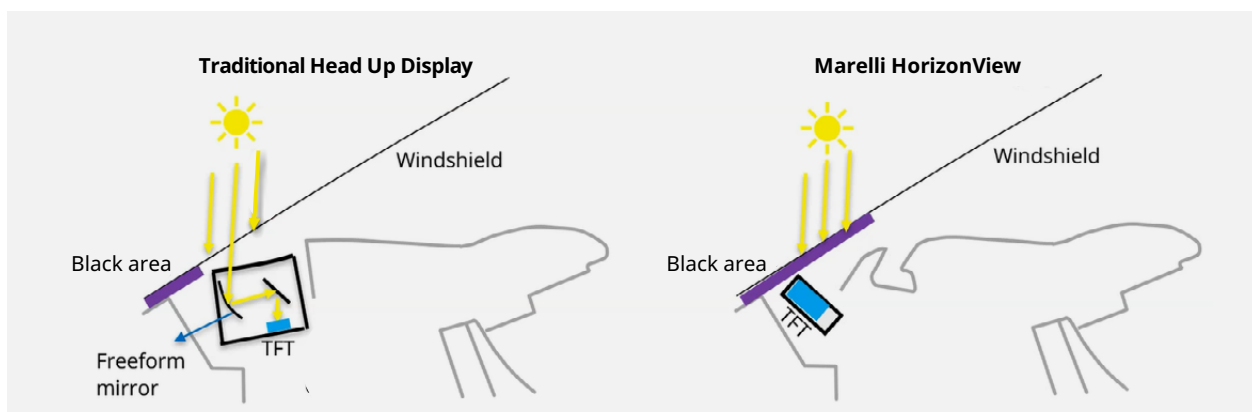
High-quality 2D reflections are projected onto a sleek, adaptable "black blade" that is either integrated along the bottom edge of the windshield or appears to float in front of it, providing an alternative reflection surface to conventional windshield-based HUDs.

Images are generated by a single or multiple Picture Generation Units (PGU) based on LCD (Liquid Crystal Display) MiniLED local dimming backlight technology to deliver high-contrast information with brightness of up to 3000 cd/m². Compared with edge-lit based solutions, HorizonView technology ensures effective halo management and postcard-effect avoidance.

The result is optimal visibility across a wide range of lighting conditions, including when wearing polarized sunglasses, plus support for larger viewing angles than conventional HUD technology.

Building on the foundation of entry-level LeanHorizon, which introduces a single display designed to replace or complement the traditional instrument cluster behind the steering wheel, ProHorizon and EliteHorizon extend the concept through scalable, multi-screen configurations along the lower edge of the windshield, with optical performance configured according to OEM requirements.

More compact and affordable than traditional HUD architectures based on complex optical mirror assemblies, and offering a distinctive, high-technology appearance with minimal additional parts, Marelli's scalable HorizonView represents a breakthrough in display technology.



Need to know

- LCD-based Thin-Film Transistor (TFT) source with MiniLED local dimming backlight
- Up to two displays (ProHorizon) or three displays (EliteHorizon)
- High readability under various ambient conditions
- National Television System Committee (NTSC) 110% color gamut
- Image Distance: ~ 1000mm
- Brightness: up to 3000 cd/m²
- Imager: TFT Low-Temperature Polycrystalline Silicon (LPTS)

ProHorizon

ProHorizon supports up to two coordinated display zones along the lower edge of the windshield, enabling information to be presented in the driver's line of sight above the steering wheel and within the central display area.

Based on an LCD MiniLED local dimming backlight, ProHorizon minimizes partial illumination when content is inactive, supporting a clean, integrated appearance with reduced driver distraction.

ProHorizon is particularly well suited to EVs and differentiated vehicles, where space efficiency, interior integration and a distinctive digital experience are key.

EliteHorizon

EliteHorizon represents the most advanced evolution of Marelli's HorizonView technology, delivering superior-quality reflections across up to three display areas. This provides a pragmatic, production-mature pathway to scaling the HorizonView concept across the full instrument panel, while retaining flexibility to adapt to dashboard design.

EliteHorizon also lays the foundations for a forthcoming single full-width display solution that allows content – such as immersive welcome graphics – to flow from pillar-to-pillar uninterrupted.

With cutting-edge technology and expansive scale, EliteHorizon is designed to elevate the sophistication of luxury and premium vehicles.





Innovation @Speed.

At Marelli, we believe speed is the new currency in automotive. In a world defined by shifting consumer expectations, rapid tech evolution, and intense competition, getting to market faster isn't just an advantage — it's essential.

Marelli empowers automakers to move with speed and purpose. As a trusted technology partner, we offer scalable platforms, software-defined vehicle enablement tools, production-ready solutions, and fast innovation cycles designed to shorten development timelines and unlock early market opportunities.

We enable speed-to-market in four distinct ways:

- **Platform Products** – Tiered, modular hardware and software solutions engineered for speed, scalability, and smart customization.
- **Software-Defined Vehicle Enablement Tools** – Supporting future-focused E/E architectures with flexible hardware, decoupled software, and cloud virtualization tools that accelerate development.
- **Ready-to-Offer Technologies** – Proven, production-ready innovations built for immediate integration and impact.
- **Minimum Viable Product Innovation** – From concept to working prototype in as little as 90 days, our agile innovation process enables co-creation with automakers for rapid product development.

This paper illustrates how Marelli's Pro and Elite platform products accelerate time to market through modular, cost-effective design, pre-validated components, and streamlined integration.