ADLINK
LEADING EDGE COMPUTING

Flexible Open Frame Panel PC Enables Sleek Blood Analyzer Design



ADLINK supplies SP2 series to a medical device maker facing design challenges around I/O flexibility, component availability and long life support, and EMC compliance.



Application Story

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High Demand for Point-of-Care Virus Testing

With the global rise of infectious diseases, like COVID-19, healthcare providers need point-of-care testing to diagnose patients in minutes instead of the days typical of hospitals and other off-site testing facilities. It is critically important to make blood testing accessible to front-line healthcare venues, like physician offices and urgent care, where testing capabilities are needed the most.

Rapid testing is a game changer, informing infected patients so they can quickly take appropriate measures, or allowing non-infected patients to carry on as usual.

Point-of-Care Blood Analyzer Challenges

Medical OEMs, ODMs, and systems integrators developing point-of-care blood analyzers (Figure 1) need to select long-life components, including a relatively small and visually-appealing display, and a hardware platform with sufficient computing performance.



Figure 1. Point-of-Care Blood Analyzer



Figure 2. ADLINK Open Frame Panel PC (SP2 Series)

A medical device maker working with ADLINK had additional selection criteria, including:

Open-frame panel PC with vertical I/O

This panel PC configuration, which is not common in the industry, provides two key benefits. First, an open frame panel PC minimizes footprint and enables a sleek design by allowing the panel PC to be housed in the same enclosure as the end product, such as a blood analyzer, retail kiosk, or gaming platform. Second, "vertical I/O" makes it easier to connect cables to external ports, like USB, Ethernet, or DisplayPort, compared to "horizontal I/O".

Component availability

Blood analyzer makers are under extreme time pressure to launch products as quickly as possible to maximize market share. Consequently, device designers want to use off-the-shelf components to reduce development time and expedite their schedules.

Long life support

Due to long certification times, device makers prefer extended life components to increase return on investment (ROI), but it can be a challenge to find components supported for more than three years, especially panels.

Electromagnetic compatibility (EMC)

Most medical equipment must undergo significant testing, including electromagnetic compatibility to ensure the device will function properly in an environment with electromagnetic interference (EMI). Therefore, key components that meet EMC testing specifications, like EN-60601-1-2, are highly desirable.

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ADLINK's Panel PC Design Advantages

A medical device maker selected our open frame panel PC for its blood analyzer, due in part to its I/O flexibility, ready availability, long life support, and EMI resilience, among other benefits.

I/O flexibility

The SP2 series supports standard I/O or customizable function modules that can be used to reposition I/O as needed by the device enclosure or to add application-specific I/O interfaces, like waterproof connectors. Other reasons to use a function module include adding internal wireless antennas, lockable USB ports, computing systems (e.g., FPGAs and BMCs), or storage (e.g., mSATA or microSD slots).

Developers can use our pre-made Function Modules (FM), design their own, or have ADLINK design them. For instance, the ADLINK function module developed for blood analyzers, shown in Figure 3, is available as an off-the-shelf component.

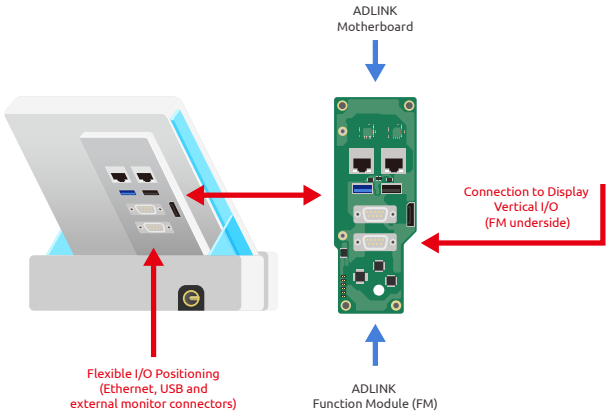


Figure 3. ADLINK Components in Blood Analyzer

Ready availability and long life support

These panel PCs are off-the-shelf components that do not require minimum order quantities, and their customer-friendly lead times support quick design cycles. ADLINK provides five-year availability for all components, including panels, which significantly exceeds standard industry practices.

EMI resilience

ADLINK SP2 series are tested for electromagnetic compatibility per the EN-60601-1-2 specification, thereby demonstrating the EMI resilience required for certification for different types of devices. By using pre-certified ADLINK smart panels, OEMs, ODMs, and systems integrators can reduce certification effort and risk.

Flexible smart panel series

Device developers can satisfy their specific form factor requirements by choosing from a dozen panel sizes, ranging from 7 to 21 inches. Likewise, developers can pick from a wide range of computing platforms that support various performance, power, and I/O requirements. ADLINK's smart panel family cost-effectively supports diverse embedded device types, ranging from a retail kiosk that typically has negligible computing needs, to AI-based industrial equipment that demands high-performance, real-time computing.

Product support

More than a standard user manual, ADLINK provides customers with a "Design Guide" to ease the integration of ADLINK smart panels into their system. ADLINK also provides a design guide for customers wishing to design their own function module and chassis.

Accelerate Your Time-to-Market

By using ADLINK panel PCs, OEMs, ODMs, and systems integrators can launch their devices up to two quarters earlier because we have already completed the early-phase development, including circuit layout, drivers, touch panel, mainboard, and display function validation.

To learn more about ADLINK's panel PCs, please visit the ADLINK website.

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