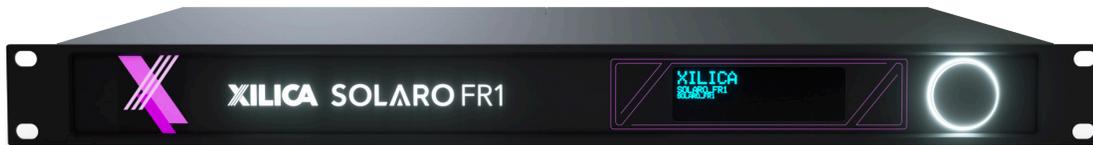# Solaro FR1 DSP Core

Solaro FR1 is a user-configurable digital signal processor designed for use with the Xilica® Solaro Series of open-architecture, modular I/O products. Its 1U chassis ships with 16 empty card slots, and a dedicated slot for the optional XC-CTODN digital audio networking card which offers AES67-enabled 64x64 Dante™ connectivity. Solaro FR1 card slots can accept any and all combinations of available Solaro Series I/O cards, including analog audio, USB, AES/EBU, GPIO and relay, making Solaro FR1 a multi-purpose, customisable signal processor suited to most medium-to-large applications including conferencing, collaboration, education, and mass communication. Additionally, its separate networking and control ports (with XC-CTODN) provide an additional layer of security for government projects.

The DSP core features license-activated Xilica HearClear™ AEC for low-latency conferencing requirements, and license-activated Xilica SONIA™ 96kHz sampling for high-fidelity listening. Solaro FR1 features advanced signal processing capabilities including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay; all configured through Xilica Designer software.

A single Solaro FR1 can support up to 32 channels of local analog audio or 64 channels of local GPIO in a single chassis, and can be linked to multiple cores or Solaro XIO I/O Expanders over Dante to support larger systems. Solaro FR1 can be controlled via a broad range of peripherals, including XTouch touch controls, the Xilica Lucia networked wall remote, complimentary Xilica iOS/Android applications, software and third-party control systems.

BENEFITS

▶ Modular I/O technology drives significant cost-savings with product-to-requirements matching and reduced inventory burden.

▶ Highly scalable solution for future-proofing projects with additional expansion capabilities.

▶ Compatibility with soft-codec platforms including Microsoft Teams, Zoom and Cisco WebEx for select status synchronization over USB.

▶ Engineered from premium components, designed by StudioX™ and complete with Xilica's Five Year Limited Warranty.

FEATURES

▶ Customizable I/O configuration to match a project's specific requirements without unnecessary cost or complexity: supports up to 16 Solaro Series I/O cards per chassis.

▶ Up to 32 local analog audio channels or 64 local GPIO channels per processor, and highly scalable via additional Solaro XIO Series I/O Expanders.

▶ Optional AES67-compliant Dante digital audio networking card (XC-CTODN) for bidirectional 64x64 transport.

▶ License-activated Xilica HearClear™ AEC at 250ms (eight channels) and 100ms (16 channels).

▶ Default 48kHz sampling rate, upgradable to 96kHz with licence-activated SONIA™ technology.

▶ User-centric industrial design by StudioX™, Xilica's in-house global design practice, featuring a high-brightness OLED display with simplified navigation.

▶ Integrated control engine for control of third-party products and ecosystem partners over Ethernet, with built-in Lua scripting.

▶ System command via Xilica XTouch touch controls, Lucia wall panels, iOS/Android apps, and software.

▶ Expertly-designed modules for third-party control systems, including Crestron® and AMX®.

▶ Configured and commissioned through Xilica Designer, the industry's first cross-platform DSP configuration software that works natively on both Windows and Mac.

▶ CE marked, ETL listed, RoHS and REACH compliant.

▶ Guaranteed under the Xilica Five Year Limited Warranty.

ENGINEERING SPECIFICATIONS

The digital signal processor shall feature 16 integrator-configurable card slots accepting any combination of analog audio input, analog line output, selectable GPIO, relay control, AES/EBU digital audio, and USB via 2x2 send/receive over Type-B socket. Within a single core, the device shall provide up to 32 local channels of analog audio, and 64 channels of local GPIO, with expansion permitted via optional Dante networked audio card to connect third-party Dante devices and proprietary I/O expansion units. The optional card shall facilitate 64x64 bidirectional networked audio transport in accordance with AES67 standards. The core shall feature an open-architecture, 40-bit floating point processor operating on a Linux backbone within a single 19", 1RU format. The core's front panel shall include a clearly-legible OLED screen with secure, lockable controls including tactile buttons. The OLED screen shall feature device name and status, network and firmware information, unit identification and system feedback. The core shall feature signal processing algorithms, including but not limited to various forms of mixers, equalizers, filters, crossovers, dynamics/gain controls, routers, room combiners, and delays. The core shall offer additional features via software-based licensing, including acoustic echo cancellation and user-selectable sample rates. The core shall feature an internal control engine with easily-understandable API, to enable bi-directional control via third-party products and control systems. The processor shall feature native compatibility with propriety touch controls, networked wall panels, networked computers running specific software, or networked iOS and Android devices. Additionally, the core shall offer Lua scripting capability for advanced system command. The program memory shall be nonvolatile and provide program security should power fail. The DSP shall be ETL marked and comply with UL/CSA/CE safety requirements, FCC emission requirements and shall be compliant with the RoHS directive. The DSP shall be the Xilica Solaro FR1.

TECHNICAL SPECIFICATIONS

THD+N (22Hz to 22kHz)	0.002% (1kHz @ +4dBu)*
EIN	<125dBu, unweighted (20Hz to 20kHz)
Dynamic Range	110dB, unweighted*
Propagation Delay	4ms at 48kHz, 2ms at 96kHz
Crosstalk, input to input, 1kHz	<110dB*
Sampling Rate	48kHz, upgradeable to 96kHz with SONIA™
Card Slots	16 user-configurable
A/D-D/A Converters	32-bit
Processor Type	40-bit floating point
Phantom Power	+48VDC, with XC-SML
USB (with XC-SUB)	*Bit depth:* 16-bit *Number of channels:* 2x2, send and receive *Driver sample rate:* 48kHz *Card sample rate:* follows DSP settings *Connector:* USB B, female
Display(s)	Front panel, OLED
Power Supply	90-240 VAC (50-60Hz) via internal power supply with IEC socket
Power Consumption	<60W
BTU/Heat Load	205 BTU/hr
Ambient Operating Temperature	32-104°F (0–40°C)
Humidity	0–98%, non-condensing
Altitude	0-6,600 feet (0–2000 Meters) MSL
AES67 Compatibility	Yes, with XC-CTODN
HearClear™ AEC	Activated via software license. 250ms (eight channels) and 100ms (16 channels)
Network Connections	Single RJ45 (Cat 5e and above) for control over Ethernet. With XC-CTODN, triple RJ45 (Cat 5e and above) including dual dedicated 1000Mbps Dante™ networking and separate network port for secure control

*Based on a configuration utilizing XC-prefixed analog audio cards.

Dante™ Send/Receive Capabilities	64x64 bidirectionally with optional user-installed XC-CTODN card
Compliance	CE (Europe), Intertek ETL (US & Canada), RoHS Directive (Europe), REACH (Europe)
Overall Dimensions/ Weight	*Height:* 1.75" (44mm) *Width:* 19" (483mm) *Depth:* 12" (305mm) *Weight:* 11lbs / 5kg
Rack Mounting	1U, 19"
Warranty	Xilica Five Year Limited Warranty

SHIPPING INFORMATION

EAN	885799210508		**HS Code**	85437099.90
SKU	Solaro FR1		**Shipping Weight**	13lbs / 6kg
Dimensions	60x600x400mm (HWD)		**Carton quantity**	1
Grouped Quantities	1 or 4			

REAR VIEW

*Pre-populated with an assortment of Solaro Series I/O Cards and XC-CTODN Dante Card