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### Understanding [Embedded - DSP \(Digital Signal Processors\)](#)

[Embedded - DSP \(Digital Signal Processors\)](#) are specialized microprocessors designed to perform complex mathematical computations on digital signals in real-time. Unlike general-purpose processors, DSPs are optimized for high-speed numeric processing tasks, making them ideal for applications that require efficient and precise manipulation of digital data. These processors are fundamental in converting and processing signals in various forms, including audio, video, and communication signals, ensuring that data is accurately interpreted and utilized in embedded systems.

### Applications of [Embedded - DSP \(Digital Signal Processors\)](#)

#### Details

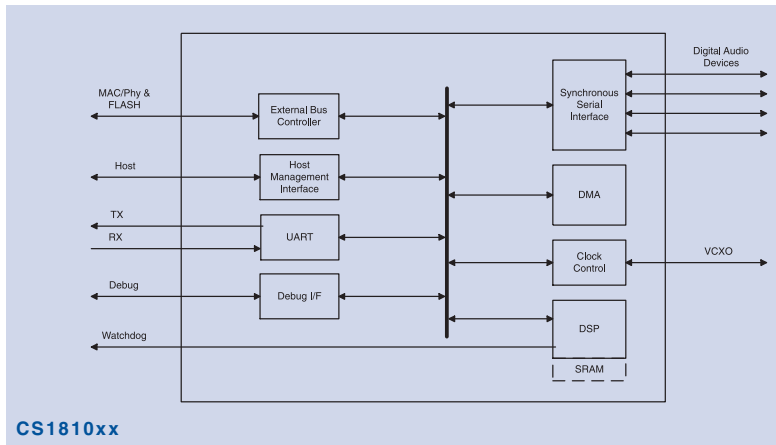
Product Status	Obsolete
Type	Ethernet
Interface	ASI, CobraNet, HMI, SSAI
Clock Rate	24.576MHz
Non-Volatile Memory	External
On-Chip RAM	External
Voltage - I/O	1.8V, 3.3V
Voltage - Core	1.80V
Operating Temperature	0°C ~ 70°C (TA)
Mounting Type	Surface Mount
Package / Case	144-LQFP
Supplier Device Package	144-LQFP (20x20)
Purchase URL	<a href="https://www.e-xfl.com/product-detail/cirrus-logic/cs181002-cqzr">https://www.e-xfl.com/product-detail/cirrus-logic/cs181002-cqzr</a>

# CS1810xx

144-pin LQFP



22 mm  
IC dimensions  
(pin-to-pin nominal)



## New CobraNet™ Silicon Series Ideal for Digital Audio Networking Applications Highly Integrated Solution Reduces Component Count and Implementation Costs

### CS1810xx

Audio manufacturers can now easily incorporate the industry standard digital audio networking technology into their product designs. CobraNet technology, from Cirrus Logic®, is available in the new CS1810xx Silicon Series, featuring three highly integrated ICs that provide 2, 8 or 16 simultaneous channels of audio input and output at either 48-kHz or up to 96-kHz sample rates. The Silicon Series includes the key CobraNet circuitry needed to integrate high-quality, cost-effective audio networking capability into a wide range of products.

The CS1810xx provides multiple 16, 20 or 24-bit audio connections across an Ethernet network. In fact, two-way audio control and monitoring is possible at any point along the network. In conjunction with an external VCXO, the ICs deliver a studio-grade, low-jitter clock source and the CS1810xx also supports dual-Ethernet connections for “mission-critical” applications.

Featuring a high-speed parallel host port interface, the CS1810xx allows optional connection to a host processor as well as offering Ethernet-based control, monitoring,

and management via industry standard SNMP. Firmware can be easily updated over Ethernet using TFTP or via the host interface. Additional control and monitoring functions are also provided by the innovative, built-in Asynchronous or packet-bridge functions.

Now available on low-cost ICs without licensing or royalty fees, the industry standard CobraNet technology can be easily integrated into new and existing networked-audio applications. Contact your local Cirrus Logic sale representative or visit [www.cirrus.com](http://www.cirrus.com) for details.

### CS1810xx FEATURES

- Silicon Series supports 2, 8, or 16 bi-directional audio channels
- Reduces power consumption
- Reduces cost
- Reduces design effort
- Supports 96 and 48 kHz sampling rates
- Selectable latency of 1.33, 2.66, or 5.33 ms across network
- 32-bit synchronous serial digital audio I/O
- Parallel host control
- Asynchronous serial control transport
- Supports FLASH memories and Ethernet controllers
- Complies fully with Power-Over-Ethernet (POE) standards
- Supports low-jitter external audio clock oscillator
- Available in 144-pin LQFP

### COBRANET TECHNOLOGY ADVANTAGES

- Available as low-cost ICs without licensing or royalty fees
- CobraNet technology can coexist with data traffic over existing Ethernet networks, saving money by eliminating additional infrastructure costs
- De-facto industry standard with tens-of-thousands of installed nodes in high-profile “mission-critical” venues worldwide
- Networked audio, control and monitoring (bi-directional)
- Uses SNMP for control and monitoring (IT-friendly)
- Incorporates multiple fault-tolerant features
- Ability to send audio from any CobraNet interface to any other – unlimited addressing, unlimited capacity

Software Tools

The Silicon Series of processors, along with the included firmware, implements a fully functional CobraNet-compliant interface. In addition, Cirrus Logic offers a variety of utility programs and documentation support to assist our developers in successfully creating and launching CobraNet technology-based products.

- CobraCad – is an application used to model CobraNet network topologies. Simply point, click, drag, and drop and CobraCad will verify that the CobraNet network configuration will perform as intended. This tool is ideal for end users installing systems with CobraNet technology.
- CobraNet Discovery – is a utility program used to provide valuable feedback regarding

the working state of a CobraNet network. The program reads and displays operational statistics from every CobraNet interface on the network. It can also be used to assign addresses to individual CobraNet devices and to update CobraNet firmware.

- CobraNet Object Tools (COT) – is a Microsoft® COM object library that can be used with a variety of software languages or scripting systems. COT provides all of the low-level functionality needed to configure and monitor CobraNet devices, greatly easing the development effort required to write custom CobraNet applications.
- Other Resources – Cirrus Logic has additional software tools available for use

in manufacturing and test environments. Reference designs and many helpful application notes are also available.

The CobraNet Silicon Series processors and its firmware and software tools are available today with the full support that comes from the worldwide Cirrus Logic sales and applications engineering teams.

CobraNet technology has a proven track record, with years of successful deployments and tens-of-thousands of nodes in use today. This solid track record, along with the cost-effective CobraNet Silicon Series of processors now available, makes the selection of CobraNet technology an easier choice than ever.

Application Examples

- Facility audio distribution
- Paging stations
- Power amplifiers
- Intercoms
- Audio snakes
- Signal processors
- Mixing consoles
- Self-powered loudspeakers
- Ceiling speakers
- Microphone pre-amplifiers
- Media servers
- Stand-alone A/D and D/A interfaces



Part No.	Serial Audio In	Serial Audio Out
CS181002-CQ	2	2
CS181012-CQ	8	8
CS181022-CQ	16	16

*\* These ICs can be made available in lead-free packaging and/or industrial grade.*