The Le79112 Voice Control Processor (VCP) is a digital signal processing platform that works with the Zarlink VE790 Series of chip sets using the MPI interface, PCM port, and an interrupt line from the codec/filter. The primary functions of the Le79112 VCP are to program and control the codec/filter via an Application Programming Interface (API). Firmware residing in the DSP's RAM provides enhanced call processing and test capabilities.

The Le79112 VCP in combination with a VE790 Series chip set, supports up to 32 channels of universal telephone line interface with high-level voice functionality. The solution enables the design of a low-cost, highperformance, fully software programmable line interface for multiple country applications. All of the AC, DC, signaling parameters, and data are fully programmable via the Host Bus Interface (HBI) through the combination of the HBI and a slave PCM port.

Additionally, the Le79112 VCP has integrated self-test and line-test capabilities to resolve faults to the line or line circuit. The integrated test capability is crucial for remote applications where dedicated test hardware is not cost effective.

There are four firmware options offered for the Le79112 VCP device:
➜ LineCare™ Call Control – Le79112SLNT
➜ LineCare™ Basic Test – Le79112SLBT
➜ LineCare™ Advanced Test – Le79112SLAT
➜ LineCare™ Advanced Test Plus – Le79112SLATP

Features
➜ Software interface using VP API-II
➜ Software downloadable, field upgradable, expandable
➜ Provides expanded line and circuit testing in conjunction with Zarlink's VE790 Series of chip sets
➜ DTMF detection
➜ Quad tone and howler tone generation
➜ Arbitrary single tone detection
➜ 15-kHz energy detection
➜ SNR tests
➜ Dial pulse measurement

Applications
➜ CO
➜ IVD
➜ PBX
➜ KTS
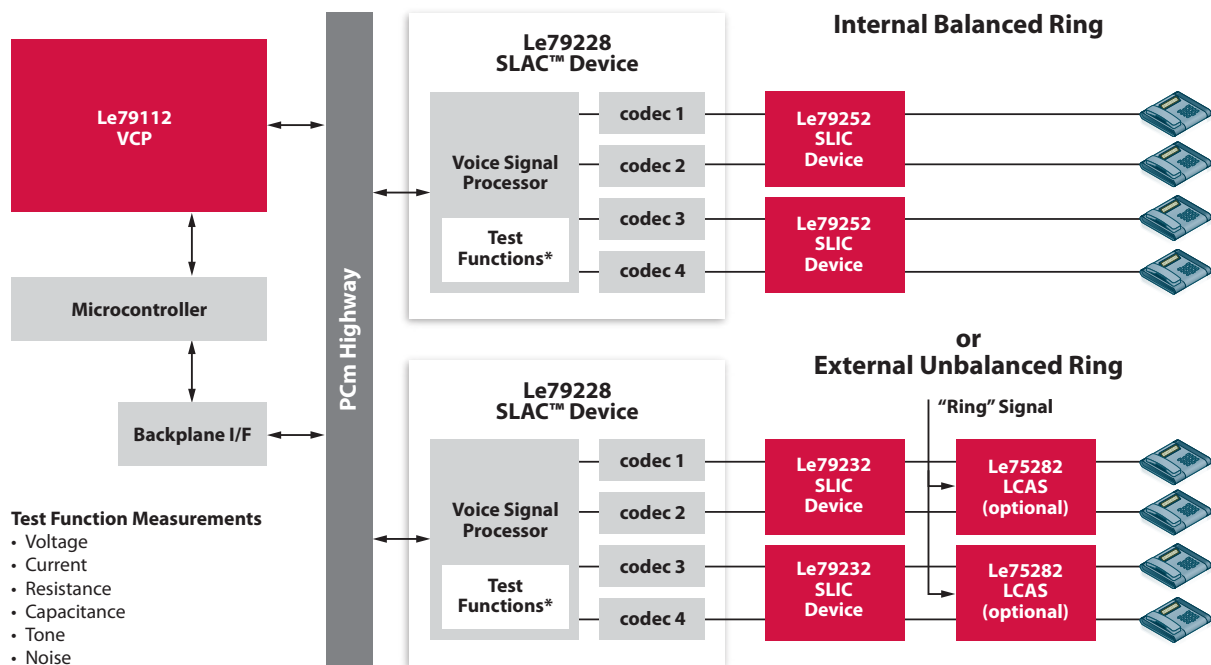
SLAC™ devices are also available in 2-, 4-, and 8-channel versions.

ZARLINK
SEMICONDUCTOR

Major Call Control Features

→ 32-Channel Call Control
- Control/Coordination of Call Processing
- CID high level interface
- Control for Metering

→ DTMF Detection
- Up to 16 lines simultaneously
- Q.24 compliant

→ Pulse Dial Timing with Decode
- 32 simultaneous channels
- Adjustable timing parameters for Make, Break, Flash, and Disconnect

→ Zero-Cross Detection for ringing on/off control

→ Optional make-before-break, or break-before-make (with LCAS)

→ Adjustable delays for internal ringing

→ AC and DC fault detection with automatic disconnect of the line

→ Slow ramp from Disconnect to Standby
- Programmable ramp time (0-4000ms)

→ Read loop conditions while in service
- Line Current (Metallic and Longitudinal)
- Sensed Voltage
- Current battery supply voltages

→ Howler Tone generation

Minor Call Control Features

→ Loadable Image
- Field firmware updates (compressed image support)

→ Programmable on/off for each fault type

→ Automatic switch to "Active" (Talk) on ring-trip/off-hook
- Minimizes the delay for ring-trip; no host interaction needed

→ Automatic Ringing and Metering Cadencing

→ Smooth polarity reversal control

→ Checksum over Program Code space while in-service
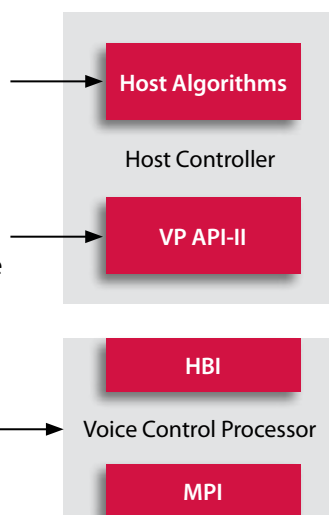
The VCP Package

Host Code

Document and source code for high-level algorithms.
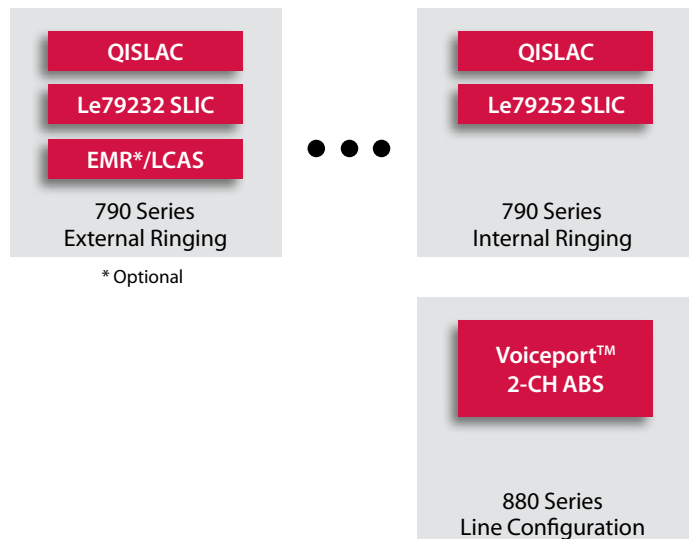
API-II Software

Application Programming Interface (API) that presents a unified programming interface to all of Zarlink's Voice Termination Devices (VTD).

VCP Firmware

Control aggregation, DTMF Detection, Line Testing, Pulse dial timing, Zero cross detection, CID.

Host Algorithms

Host Controller

VP API-II

HBI

Voice Control Processor

MPI

Supported Line Circuit Configurations

QISLAC

Le79232 SLIC

EMR*/LCAS

790 Series
External Ringing

* Optional

QISLAC

Le79252 SLIC

790 Series
Internal Ringing

Voiceport™ 2-CH ABS

880 Series
Line Configuration

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