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# MaxLinear MxL277 Full-Spectrum Capture™ DOCSIS® 3.1 Cable Receiver & Amplifier Chipset Powers Hitron's DOCSIS® 3.1 CPE Family

- *Hitron's CODA-45 Data Modem, Latest Addition to its CODA™ Product Line, Achieves DOCSIS 3.1 Certification Based on the MxL277 Multi-Gigabit Front-End*

CARLSBAD, Calif.--(BUSINESS WIRE)-- MaxLinear, Inc. (NYSE: MXL), a leading provider of radio frequency (RF) and mixed-signal integrated circuits for broadband communications, the connected home, data center, metro, long-haul fiber networks, and wireless infrastructure, today announced that Hitron Technologies Inc. (TAIEX: 2419), a leading global telecommunications networking company, has successfully achieved Cable Labs® certification of its CODA-45 DOCSIS 3.1 cable modem using the MxL277 Full-Spectrum Capture™ (FSC™) digital cable front-end receiver, the MxL236 upstream programmable gain amplifier, and the Intel® Puma™ 7 DOCSIS 3.1 SoC.

First in Hitron's new multi-gigabit cable CPE family, the certified CODA-45 is capable of up to 5Gbps downstream over multi-carrier OFDM channels bonded with 32 single-carrier QAM channels and up to 1Gbps upstream throughput via DOCSIS 3.1. The two GigE ports deliver 1.97Gbps to the customer's home.

The CODA-45 not only enables cable operators to offer services that exceed current fiber optic data rates, but also allows them to use their existing cable plant infrastructure to provide multi-gigabit data services.

Capturing up to the entire 1.2 Gigahertz (GHz) of fully deployed cable spectrum bandwidth to the home, the MxL277 DOCSIS 3.1 receiver enables cable operators to meet consumer demand for multi-gigabit data rates by the flexible deployment of spectrum bandwidth between the new OFDM and legacy QAM modulation based data services. Designs based on the MxL277 will usher in a new generation of high-capacity, multi-gigabit-per-second IP data gateways, home media gateways, and hybrid or IP-based set-top boxes (STB) that mark significant advances towards all IP-based delivery of multimedia content and cloud services.

The ever-increasing consumer demand for media and over-the-top (OTT) data content is creating enormous demand for bandwidth capacity in gateway devices in order to enable expanded services at home. With the new DOCSIS 3.1 standard, cable MSOs will be able to offer their subscribers real multi-gigabit data bandwidth services on their existing coaxial cable network infrastructure.

Also selected for use in Hitron's CODA family of DOCSIS 3.1 gateway platforms, the MxL236 cable upstream programmable gain amplifier (PGA) not only delivers sufficient power for upstream communication with cable head-ends with extremely high power efficiency, but also provides valuable upstream network maintenance capabilities.

The MxL236 can report network health and performance parameters on the upstream link, which can be used by cable operators in managing and troubleshooting their networks and reducing technician truck rolls. This innovative feature allows Hitron to offer network maintenance expense savings capabilities for cable operators by avoiding costly technician visits to customer homes through remotely monitoring and diagnosing potential problems with the cable network.

"Working with Hitron to deliver multi-gigabit data rates utilizing DOCSIS 3.1 is an exciting milestone for MaxLinear," said Will Torgerson, MaxLinear's Vice President and General Manager, Broadband Group. "This is a great example of the value MaxLinear's Full-Spectrum Capture receivers bring to OEMs developing next-generation cable modem and gateway products. Our product features not only represent the absolute best-in-class in power savings, performance, form factor and ease of RF use, but also offer valuable network performance enhancement diagnostics to cable MSOs. We are looking forward to supporting Hitron with our MxL277 receiver and MxL236 PGA as they expand multimedia and data bandwidth in the home."

"MaxLinear's chipset was the ideal choice for our new family of DOCSIS 3.1 cable products," said Patrick Chiu, Hitron's President, Americas & Europe Business Unit. "The MxL277 Full-Spectrum Capture receiver and MxL236 PGA enable our service provider customers to quickly roll out multi-gigabit broadband services over their existing HFC plant with the highest speeds and lowest power available today. MaxLinear's flexible and world-class software allows Hitron to quickly deliver DOCSIS 3.1 products that are simple to deploy, monitor and manage."

### **MxL277 Technical Highlights**

Based on MaxLinear's industry-leading, low-power 28nm CMOS process technology, the MxL277 offers a monolithic digital cable front-end with integrated LNA and signal conditioning functions combined with a Full-Spectrum Capture receiver up to 1.2GHz that supports up to two OFDM channels and up to 32 legacy QAM channels.

When utilizing all OFDM and QAM capabilities, the MxL277 delivers up to 5 Gbps data rates downstream and up to 2 Gbps data rates upstream, all over the existing cable network while consuming less than 1.4W. Furthermore, the MxL277 can be used in an ultra-low power mode, consuming roughly 500mW total, while still meeting cable operator voice call and standby time requirements upon loss of power to the home.

The MxL277 supports remote spectrum analyzer functions on the downstream and upstream links that report network health and performance parameters. This turns every gateway into a tool for operators to diagnose their network health without costly technician visits to the field.

The MxL277 exceeds requirements for DOCSIS 3.1, including the stringent test scenarios under SCTE40 plant loading and impairment conditions. The device supports a high-speed

serial interface to a DOCSIS 3.1 modem, and has an integrated single-channel tuner for low-power operation.

### **MxL236 Technical Highlights**

The MxL236 supports upstream frequencies up to 204MHz with any combination of OFDM and QAM channels with a combined output power of up to 65dBmV at the cable connector. Under most installed scenarios, the device can dissipate less than 1.5W. As cable operators increase upstream data rates to offer more symmetrical services to consumers, reducing power dissipation in the front-end simplifies thermal design efforts and reduces heat mitigation costs. Using only a single 3.3V supply, the MxL236 allows manufacturers to eliminate the 5V supply from their gateway design entirely, further simplifying layout and reducing system cost.

### **Availability**

The MxL277 DOCSIS 3.1 receiver is available in production quantities in a standard 10mm X 10mm QFN package. The MxL236 is available in production quantities in a standard 7mm x 7mm QFN package. Please contact MaxLinear for ordering information.

### **About MaxLinear, Inc.**

MaxLinear, Inc. (NYSE: MXL), a leading provider of radio frequency (RF) and mixed-signal integrated circuits for cable and satellite broadband communications, the connected home, data center, metro, long-haul fiber networks, and wireless infrastructure markets. MaxLinear is headquartered in Carlsbad, California. For more information, please visit [www.maxlinear.com](http://www.maxlinear.com).

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### **About Hitron Technologies, Inc.**

Hitron Technologies, Inc. delivers more than 3 million DOCSIS products annually to MSOs worldwide, which support both residential and business class applications. With a world-class manufacturing campus in China and regional offices in the Netherlands and the USA, Hitron's global operation spans more than 15 countries with over 1,000 employees. Information about Hitron products and services can be found at [www.hitrontech.com](http://www.hitrontech.com).

### **Cautionary Note About Forward-Looking Statements**

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include, among others, statements concerning or implying future financial performance or trends and growth opportunities affecting MaxLinear, including statements related to the performance of MaxLinear's MxL277 Full-Spectrum Capture (FSCTM) digital cable front-end receiver and MaxLinear's MxL236 upstream programmable gain amplifier. These forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from any future results expressed or implied by these forward-looking statements. We cannot predict whether or to what extent we will successfully commercialize and realize revenues from the MxL277 and MxL 236. Forward-looking

statements are based on management's current, preliminary expectations and are subject to various risks and uncertainties, including (among others) risks relating to integration of our recently announced acquisitions of assets from Microsemi Corporation and from Broadcom; intense competition in our industry; the ability of our customers to cancel or reduce orders; uncertainties concerning how end user markets for our products will develop; our lack of long-term supply contracts and dependence on limited sources of supply; potential decreases in average selling prices for our products; currently pending intellectual property litigation; and the potential for additional intellectual property litigation, which is prevalent in our industry. In addition to these risks and uncertainties, investors should review the risks and uncertainties contained in MaxLinear's filings with the United States Securities and Exchange Commission, including our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2015 as amended by Amendment No. 1 filed with the SEC on April 28, 2016; our subsequent Quarterly Reports on Form 10-Q for the quarters ended March 31, 2016, June 30, 2016 and September 30, 2016; and our Current Reports on Form 8-K. All forward-looking statements are qualified in their entirety by this cautionary statement. MaxLinear is providing this information as of the date of this release and does not undertake any obligation to update any forward-looking statements contained in this release as a result of new information, future events, or otherwise.

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