What solutions can Avnet bring to you at wearables?

Breaking down Barriers in NFMI

Read more

Revolutionizing Wearable Technology

Read more

Xilinx:
Expands into Wide Range of Vision-Guided Machine Learning Applications with reVISION Stack

Recognition from Our Valued Suppliers

Over the last month, Avnet has been honored with awards by several of our valued suppliers and partners.

Join in the Automotive Webinar
8 Jun 2017, 2PM (SGP/HK), 11AM (India), 4PM (ANZ)
Selected 10 attendees will receive an exciting premium

Products - Wearable

Together with industry-leading technology companies, Avnet brings you the best and most popular options here to support your wearable products.

AzureWave Technologies

Wireless module

Dialog Semiconductor

SmartBond IDT

Wireless Power Reference Kit

Infineon DPS310

Maxim Integrated for Wearable Applications

Microchip BLE module (MR / ZR / XR)

ON Semiconductor WDK1.0GEVK

Quectel 2G/3G/LTE Wireless Modules & GPS/GNSS module

Texas Instruments Wireless Power Receiver

Vishay VCNL4020C
The advantages of near field magnetic induction (NFMI) technology have created a wave of innovation opportunities in the marketplace. Requiring significantly less power than its radio frequency counterpart, and having excellent transparency to water and the human body, NFMI is ideal for wearable applications that utilize short range audio and/or data communication. This has given rise to impressive new wireless earbuds, hearing instruments and bio-sensors, just to name a few.

To help engineers simplify their development process, and reduce the time-to-market for their new creations, global technology leader Avnet is delighted to equip them with the NFMI Development Kit. Its meticulously-conceived testing functions provide a comprehensive scope for evaluation, thus empowering innovators to assess, appraise and realize their visionary designs more efficiently and effectively.

Features

• Demonstrate wireless audio streaming by NFMI technology
• Optimized protocol for low-latency ear-to-ear communication
• Low absorption by human body tissue
• Programming connectors available for further development
• Battery-powered operation

System

• NFMI transceiver (NXH2280)
• Host controller (LPC1115)
• NFMI antenna (Vishay Coil)
• Audio DAC (WM8750)

Target Applications

• Earbuds
• Hearing instrument

Block Diagram

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Smarter Wristband Solutions are Now at Hand

While the popularity of wristband solutions originally centered around fitness tracking, their appeal has broadened dramatically in recent years, with users turning to wearables for communicating, locating, time-keeping, and even assisting in many aspects of daily life.

As the technology enabler who has earned the trust of the world's top innovators, Avnet is helping to open the doors to new creations in this popular field. Drawing on our deep experience in the design and implementation process, we understand that engineers looking for the next breakthrough product seek electronics that put a world of possibilities within their reach. With that, Avnet introduced the SZADS Dialog Smart Wristband Solution.

Handy in size yet brimming with useful features that cover vast areas of applications, the solution designed with low power demand is the ideal platform to build sought after wearables that propel their organizations into the marketplace.

Features

• Pedometer
• Incoming calls / missed calls
• RTC (date and time)
• SMS
• Alarm
• ANCS (for iOS)
• Rechargeable
• Find me
• Vibration
• Software upgrade OTA
• Lower power: as low as 30uA (G sensor ODR:50Hz, BLE interval time: 0.7s)

Key Components

• DA14681-01000A92 (Dialog)
• KXG07-3001 (Rohm)
• PCF85063TP/1 (NXP)
• LIS3MDL (STM)
• SI1143 (Silicon Lab)

Target Applications

• Wearable
• Smart Home
• Virtual Reality

Block Diagram

DA1468x, the world's first single-chip solution in volume production that provides connectivity for rechargeable devices, including smart home and other emerging Internet of Things (IoT) devices. DA1468x delivers the highest performance, lowest power consumption, smallest footprint and lowest system cost. Some success wearable products with DA1468X on market,

• Xiaomi Mi band2 (DA14680 inside)

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Revolutionizing Wearable Technology

Riding on this wave, Avnet’s design arm ADS has come up with a platform based on the Nordic nRF51 BLE Wristband Reference solution that has significantly shortened the amount of time taken to develop and market wearable products to the consumer.

Made possible due to Avnet’s technological expertise, the BLE Wristband Reference solution comes integrated with a plethora of functions such as power management, a real-time-clock, battery charging, OLED display, haptic rotor, sensor hub with MEMs and storage capacity, in addition to the robust communication channels setup with the smartphone host.

Equipped with such extensive features, this makes the BLE Wrist Band solution suitable for a wide range of wearable applications such as smart bands, smart watches, smart jewelry, footwear and head gear.

Features

• Step counting and Activity tracking (AAR)
• Display clock and step count/ activity tracking on the device
• Sync and show activity statistic on Android APPs
• Over-the-Air Firmware Upgrade
• Storage for 5 months record
• Crisp OLED display
• Display battery level status
• Battery lifetime: > 1 week

Key Components

• nRF51822 - BLE SoC
• ICM30630 – 6-axis Motion Tracking Sensor with Integrated Sensor Hub
• MAX14676/MAX14674A – PMIC
• M95M02 - 2 Mb SPI EEPROM
• DS1342T - RTC
• AHB36132U1 - 70 mAh 4.2V Li Poly Battery

Target Applications

• Wristband
• Smart Watch
• Smart jewellery
• Footwear
• Head gear
• Wellness

Block Diagram

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Recognition from Our Valued Suppliers

Over the last month, Avnet has been honored with awards by several of our valued suppliers and partners. These gestures of recognition spur us on to work harder in our roles as the crucial link between suppliers and customers, and as the solutions provider for leading brands.

Epson Honors Avnet China as Its Top Distributor

In April, during EPSON 2017 Innovation Day, Avnet China received a prestigious award recognizing Avnet as its No. 1 distributor. The award was conferred upon Avnet China after evaluating the candidates according to the nine criteria of sales growth rate, sales amount percentage, extent of coverage of China, winning design projects, payment promptness, sales inquiries, conversions, industry compliance and innovation.

Avnet Receives Triple Honors at Micron Asia's VIP Dinner

At the annual Micron Distribution VIP Dinner held in Taipei in May, Avnet was recognized for its outstanding technical and business performance at the Micron Technology Awards. Avnet Asia picked up the 2016 Most Valuable Player and Best Demand Creation awards, while Avnet Taiwan won Best Field Application Engineers Service 2016. The event marked the second year of Micron Technology's awards program, which recognizes distributors supporting the company's overall business growth, success and demand creation.

WeEn Names Avnet Best Performing Distributor

In April, 2017, at an awards dinner hosted by WeEn in Shenzhen, Avnet was declared the top distributor for the second year running, with the receipt of the WeEn 2016 Best Performance Distributor Award. The award recognized the distributor who had attained the highest business growth and delivered the top performance. Our own objectives are aligned with WeEn's commitment to help its customers achieve higher cost-efficiency and production efficiency while fostering the development of intelligent manufacturing in China and worldwide.

Winning Partnerships

We would like to take this opportunity to express our sincere thanks for all those who contributed to our recent slew of wins. None could have been possible without the ongoing support of our suppliers and partners.
AzureWave Technologies - Wireless module
AW-CH397
• Frequency: 2.4 / 5GHz
• Antenna: 2x2 MIMO
• Wi-Fi: 802.11 a/b/g/n/ac
• Bluetooth: 4.0 BLE
• NFC Support
• Interface: PCI-E / USB / SDIO / UART
• Form factor: SiP
• Dimension: 12.3 x 10.1 x 1.0mm

AW-AH640
• Frequency: 2.4 / 5GHz
• Antenna: 1x1
• Wi-Fi: 802.11 a/b/g/n
• Bluetooth: 4.0 BLE
• FM Support
• Interface: SDIO / SPI / UART / I2S
• Form factor: SiP
• Dimension: 9 x 9 x 0.956 mm

AW-CM389NF
• Frequency: 2.4 / 5GHz
• Antenna: 2x2 MIMO
• Wi-Fi: 802.11 a/b/g/n/ac
• Bluetooth: 4.0 BLE
• NFC Support
• Interface: PCI-E / USB / SDIO / UART
• Form factor: M.2 1216
• Dimension: 12 x 16 x 1.4mm
Dialog Semiconductor - SmartBond DA1458X, DA1468X

Bluetooth low energy solution: power, size and system cost without compromise

Features
• Portfolio of single-mode Bluetooth® low energy System-on-Chip solutions
• Optimized for low power, small size and low system cost
• Embedded Bluetooth 4.2 software stack
• Complete development environment and tools
• Extensive set of reference design tools
• Sensor hub functionality
• Variety of packages and modules available

Application
• Wristband
• Activity tracker
• Fitness tracker
• Sport watch
• Smart watch

Product Benefits
• Reducing power consumption
• Smaller PCB area
• Lower system cost

Block Diagram
• Bluetooth 5 qualified
• More memory, 64KB OTP, 96KB SRAM, 128KB ROM
• Direct memory access interface
• Audio Interface

SAP Part Number / Web Buyable:
• DASDA14580*
• DASDA14581*
• DASDA14582*
• DASDA14583*
• DASDA14585*
• DASDA14586*
• DASDA14680*
• DASDA14681*

Learn More
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Integrated Device Technology - Wireless Power Reference Kit for ≤3W applications

IDT's wireless power reference kit is targeted for applications ranging from 0.5 to 3W. The reference kit is comprised of both the transmitter (P9235A-R-EVK) and the receiver (P9027LP-R-EVK) with three different coil size options supporting applications with different form factors.

The comprehensive, turnkey reference design enables immediate prototyping. An associated layout module allows for direct instantiation on to a system board, while an optimized and fully-tested BOM takes the guess-work out of component selection. In addition, the extensive digital library of collateral eliminates traditional design and support barriers regardless of application volume.

Features
- Supports up to 3W applications
- Complete wireless power system with 3-coil sizes
  - Supporting a wide range of applications and form factors
- Peak 80% system efficiency at 3W
- Seamless integration with drop-in reference layout provided
- Complete development package for fast prototyping

Video - IDT WP3W-RK Wireless Power Kit Unboxing and Usage Tutorial
Download - Manual Reference Board
Learn More

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DPS310 is a digital barometric air pressure sensor featuring an ultra-high resolution, high accuracy, low energy consumption and miniature size. DPS310 is specially designed to enable enhanced navigation experience, activity level monitoring, gesture recognition and weather monitoring.

Features

- Operating pressure range: 300 … 1200 hPa
- Operating temperature range: -40 … 85°C
- Pressure level precision: ±0.006 hPa (or ±5 cm) (high-precision mode)
- Pressure sensor relative accuracy: ±0.06 hPa (or ±0.5 m)
- Temperature accuracy: ±0.5°C
- Pressure temperature sensitivity: < 0.5 Pa/K
- Measurement time: Low-power mode: 3 ms
- Average current consumption: Low power: 3 μA (1 measurement/sec.)
- Standby: < 1 μA
- Supply voltage: VDDIO: 1.2 … 3.6 V, VDD: 1.7 … 3.6 V
- Operating modes: Command (manual), background (automatic), standby
- Interface: I2C and SPI (both with optional interrupt)
- Miniature package 8-pin LGA: 2.0 x 2.5 x 1.0 mm.

Application

- Internet of Things
- Wearable electronics e.g. health and sports gadgets
- Indoor navigation floor detection e.g. in shopping malls and parking garages
- Outdoor navigation in personal navigation devices
- Dead-reckoning e.g. in tunnels
- Local weather station

Product Benefits

- Ultra-high precision
- High measurement accuracy over wide pressure and temperature range
- Easy implementation due to compact size
- Low system level energy consumption due to FIFO

Downloads:

- Application Notes
- Learn More:
  - Product Brief- DPS310 digital barometric pressure sensor for mobile and wearable devices

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Maxim Integrated - Products for Wearable Applications

MAX30205 - High Accuracy Temperature Sensing
MAX30101 & MAX30102 - Heart-Rate Monitoring and Blood Oxygen Sensing
MAX14720 - Flexible Low Power Management
MAX32620 & MAX32630 - Ultra-Low Power ARM Cortex-M4F
MAX30003 - Clinical Grade ECG AFE

Features
• Skin temperature
• Heart rate
• Biopotential measurement (ECG)
• Motion
• Rotation
• Barometric pressure

Application
• Bio Authentication and ECG-On-Demand Applications
• Chest Band Heart Rate Monitors for Fitness Applications
• Single Lead Event Monitors for Arrhythmia Detection
• Single Lead Wireless Patches for At-Home/In-Hospital Monitoring
• Fitness Monitors
• Sensor Hub
• Sport Watches
• Wearable Medical Patches
• Fitness Assistant Devices
• Wearable Devices
• Wearable Fitness Devices
• Wearable Medical Devices

Product Benefits
• Temperature using Temp Sensors
• Barometer Pressure using Pressure Sensor
• HR using ECG Analog Front End

Block Diagram

Easing the Design Process for the Internet of Medical Things

Downloads:
• Technical Documentation
• Design Resource
• Application Notes
• Data Sheets
Microchip - ATSAMB11 / ATBTLC1000 BLE module (MR / ZR / XR)

SAMB11 / BTLC1000 MR, XR and ZR module

The ATSAMB11 is an ultra-low power Bluetooth® SMART (BLE 4.1) System on a Chip with Integrated MCU, Transceiver, Modem, MAC, PA, TR Switch, and Power Management Unit (PMU). It is a standalone ARM® Cortex®-M0 applications processor with embedded Flash memory and BLE connectivity.

The ATBTLC1000-ZR is an ultra-low power Bluetooth® SMART (BLE 4.1) System on a Chip with Integrated ARM Cortex-M0 MCU, Transceiver, Modem, MAC, PA, TR Switch, and Power Management Unit (PMU). It can be used as a Bluetooth Low Energy link controller or data pump with external host MCU or as a standalone applications processor with embedded BLE connectivity and external memory.

Features

• Bluetooth BLE communciation

Application

• Bluetooth data transfer

Product Benefits

• Low power and small size

Specifications

• BLE 4.1

Learn More:

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WDK1.0GEVK: Wearable Reference Design and Development Kit

The WDK1.0GEVK is the Market’s 1st scalable and flexible wearable reference design and development kit complete with AirFuel compatible wireless charging technology. The WDK1.0 includes HW schematics and design file and also includes Integrated Development Environment (IDE) and sample codes for developers. The WDK1.0 also includes a SmartApp that is downloadable from the Android PlayStore and Apple Store to evaluate and control multiple functions of the smartwatch.

Features

• Touch Screen display
• Wired and AirFuel Compatible Wireless Charging capability
• 6-axis Motion Sensor and Temperature Sensor
• Alarm, Timer, Stopwatch
• Smart App
• HW schematics
• Firmware SW Code and sample codes
• Dock Station for Charging
• Accessories

Learn More

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Quectel - 2G/3G/LTE Wireless Modules & GPS/GNSS module

Quectel is a 100% dedicated Supplier of M2M Wireless Modules that including 2G/3G/LTE Wireless Modules & GPS/GNSS module. If your product is for IoT&M2M application, please visit our web-site: http://www.quectel.com/

Features
• Qualcomm platform & Complete Certified Application

Product Benefits
• Pin to Pin module, Good service and Flexible price

Specifications
• 2G/3G/LTE Wireless Modules & GPS/GNSS module
  1) We got 2G/3G/LTE module and pin to pin compatible.
  2) Package are LCC & MINIPCIE.
  3) 3G & LTE module build in GNSS.
  4) For low power & low cost module, we got Cat.M1 & NB-IoT modules.
  5) GPS module are pin to pin compatible with u-blox.

Learn More:
You also could contact with Regional Sales Manager - Victor: 886 920-059-119 victor.yu@quectel.com

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The bq51003 is an advanced, integrated, receiver IC for wireless power transfer in portable applications optimized for 2.5-W and below applications. The device provides the AC-DC power conversion while integrating the digital control required to comply with the Qi v1.2 communication protocol. Together with the bq500210 transmitter controller, the bq51003 enables a complete contact-less power transfer system for a wireless power supply solution. By using near-field inductive power transfer, the receiver coil embedded in the portable device receives the power transmitted by the transmitter coil through mutually coupled inductors. The AC signal from the receiver coil is then rectified and regulated to be used as a power supply for down-system electronics. Global feedback is established from the secondary to the transmitter to stabilize the power transfer process through back-scatter modulation. This feedback is established by using the Qi v1.2 communication protocol supporting up to 2.5-W applications.

The device integrates a low-impedance full synchronous rectifier, low-dropout regulator, digital control, and accurate voltage and current loops.

**Features**

- Integrated Wireless Power Supply Receiver Solution
  - Optimized for 2.5-W Applications
  - 93% Overall Peak AC-DC Efficiency
  - Full Synchronous Rectifier
  - WPC v1.2 Compliant Communication Control
  - Output Voltage Conditioning
  - Only IC Required Between Rx coil and Output
  - Wireless Power Consortium (WPC) v1.2 Compliant (FOD Enabled) Highly Accurate Current Sense
  - Dynamic Rectifier Control for Improved Load Transient Response
  - Dynamic Efficiency Scaling for Optimized Performance Over Wide Range of Output Power
  - Adaptive Communication Limit for Robust Communication
  - Supports 20-V Maximum Input
  - Low-power Dissipative Rectifier Overvoltage Clamp (VRECT-OVP = 15 V)
  - Thermal Shutdown
  - Multifunction NTC and Control Pin for Temperature Monitoring, Charge Complete and Fault Host Control

**Application**

- Smart Clothing
- Smart Watch
- Virtual / Augmented Reality Headsets & Glasses
- Wearable Fitness & Activity Monitor
- Wireless Headset & Headphones
- Wireless Patient Monitor

**Specifications**

Please refer to datasheet
The VCNL4020C is a fully integrated biosensor and ambient light sensor. Fully integrated means that the infrared emitter is included in the package. It has 16 bit resolution. It includes a signal processing IC and features standard I2C communication interface. It features an interrupt function.

Features

• Package type: surface mount
• Package form: SMD
• Dimensions (L x W x H in mm): 4.90 x 2.40 x 0.83
• Integrated modules: infrared emitter (IRED), ambient light sensor (ALS), photo diode (PD), and signal conditioning IC
• Interrupt function
• Supply voltage range VDD: 2.5 V to 3.6 V
• Supply voltage range IR anode: 2.5 V to 5 V
• Communication via I2C interface
• I2C bus H-level range: 1.7 V to 5 V
• Floor life: 72 h, MSL 4, according to J-STD-020
• Low stand by current consumption: 1.5 μA
• Material categorization: for definitions of compliance, please see www.vishay.com/doc?99912

Application

• Wearables
• Health monitoring
• Pulse oximetry

Downloads:
Components for the Internet of Things
Learn More: