

JUNO WirelessUSB™ Product Presentation



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"Solutions for a Real Time World"™

**Nexus™ Series
Juno™ WirelessUSB™ Modules**




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Agenda

- Unigen Corporate Snapshot
- Theory of Modules
- WirelessUSB™
 - Market Positioning, Specifics
- Nexus™ & Juno™
 - Juno WirelessUSB Modules
 - Applications
 - Model Features
- WirelessUSB vs. the Competition
- Critical Considerations
- Summary
 - WirelessUSB, Juno
- Juno UGWR2US Long Range Modules
 - Mechanicals, Antennae, Contact Information



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Corporate Snapshot

- Founded in 1991 in Fremont, CA - ISO 9001 Certified
- High-End Module Design, Fabrication, and Testing
- Worldwide Sales, Manufacturing, and Support Presence
 - US, Taiwan, China, Malaysia, Vietnam, Europe
- OEM Customer Centric Services & Support
 - NPI & Design, EMS, Test/Validation, Integration Solutions
- Diversified Product Roadmap
 - Memory, Mixed Technology, DC/DC Voltage, Wireless, Silicon



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Theory of Modules

Module Types

- Standards Based
 - JEDEC, CFA, SD, USB
- Platform
 - DIMM, IDE, PCMCIA
- Device
 - SPI, UART, USB

Module Uses

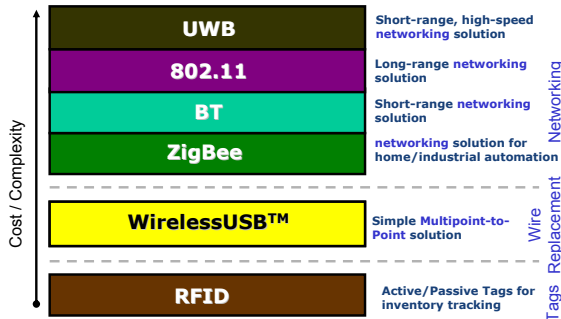
- "End Products"
 - SDIO, Compact Flash, Jump Drives
- BTO Option
 - Standard device/host w/wo module function
- Flexibility
 - Upgrade technology
 - Enhance Features

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WirelessUSB Market Positioning



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WirelessUSB Specifics

| Feature | Benefit |
|--------------------|--|
| • Ease of Use | • USB "Plug-n-Play" |
| • Low Cost | • Integration = <\$2 |
| • Low Power | • ~ 5X battery life of Bluetooth |
| • Robust Operation | • Patented DSSS Solution |
| • Co-Location | • "Plays well" with WiFi, Bluetooth, and other legacy wireless solutions |

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Nexus™ and Juno

"Nexus"

Chosen to represent Unigen's Wireless Product Family as it describes the overall goal of wireless connectivity solutions.

- a) A means of connection; a link or tie
- b) The core or center

"Juno"

Chosen as it represents Cypress's marriage of USB and 2.4Ghz communications with Unigen's module solutions for design, integration, and deployment.

- A) The principal goddess of the pantheon and the wife of Jupiter, worshiped as the goddess of women, marriage, childbirth and the moon, and as the protector of the state.

- Source - The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2000

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Juno WirelessUSB Modules

- "Drop-in" Radio Solutions
 - HID Computing Devices
 - Keyboard, Mouse, Game Pad
 - Industrial Devices
 - Remote Data Collections, Factory Line/Warehouse
 - Consumer Devices
 - Toys, Remote Controls, Garage Door Openers
- Extension to USB Standard
 - Pending USB IF Ratification
 - Trade Association and Trademark Licensing, Product Certification
- Agency Certification Support
 - FCC Radio Module Device, EU
 - Grandfathered by Unigen to Customers



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Juno Applications

Module Solutions for:

- Computer Input Devices (HID)
 - Keyboards, Mice, Joy-Sticks, Presentation devices,
- Video Game Devices
 - Game Pads and Mats
- Remote Controls
 - Garage, "Universal" Consumer Electronics
- Industrial Data Collections
 - Warehouse and Inventory, Factory Line
- Distributed Deployment
 - Remote Data Collections (Utilities), Transportation

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Module Features
Juno B Series



In Production Now!

- Uses CYWUSB6934
- Complete Radio with Integrated Antenna
 - No additional components needed
- Rated 10 Meter Range
 - Conservative Measurement
- <1"sq. in Size
 - *Very compact design for smallest peripherals*
- Designed for direct PCB application
 - Header or SMT connection to device
- <\$5.00/ea. for 10k/mo.
- FCC and International Agency Approved!

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Module Features
Juno L Series



In Production Now!

- Uses CYWUSB6934
- Complete Radio with Integrated Antenna
 - No additional components needed
- Rated 10 Meter Range
 - Conservative Measurement
- 1"sq. in Size
 - *Very compact design for smallest peripherals*
- Designed for direct or off PCB application
 - Header, SMT, or cabled connection to device
- <\$5.00/ea. for 10k/mo.
- FCC and International Agency Approved!

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Module Features
Juno LPA Series



In Production Now!

- Rated 1000 Meter Range
 - With integrated Power Amplifier
- Complete Radio supports 1 or 2 off-board Antennae
 - 5dB gain, paired antennae available from Unigen
- 1.67"sq. in Size
 - Compact design
- Designed for direct PCB application
 - Header, SMT, or cabled connection to device
- <\$7.00/ea. for 10k/mo.
- FCC and International Agency Approved!

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WirelessUSB vs. The Competition



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WirelessUSB and 27MHz

- **WirelessUSB is a higher quality solution**
 - 10M range for home and conference room use
 - Virtually unlimited co-location for office and classroom use
 - Bi-Directional for better security and robustness
 - Bandwidth for many devices (KBM, Remote, Joystick etc.)
- **WirelessUSB has Comparable Cost**
 - WirelessUSB is on a silicon cost reduction path
 - Integration of MCU+radio in development
- **2.4GHz is bigger than 27MHz**
 - Real and perceived advantage (e.g. cordless telephones)



WirelessUSB is *designed* to replace 27MHz systems

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WirelessUSB and Bluetooth



- **Bluetooth is a poor solution for HID**
 - Bluetooth designed for cell-phone usage model
 - Assumes frequent recharging, roaming, ad-hoc networking
 - Results in poor battery life or forces rechargeable solutions
 - Complex installation results in high support cost
 - Use of BT network (printing, syncing) reduces KBM performance
- **WirelessUSB costs less and performs better**
 - All the benefits of 2.4GHz approaching 27MHz prices
 - Installation is plug and play
 - No confusing driver support and interoperability issues
- **Bluetooth has issues with interference and co-location**
 - BT 1.2 helps interference, but makes co-location worse
- **Bluetooth not well suited for remote control devices**



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WirelessUSB and Other 2.4GHz Solutions

- **WirelessUSB is the best 2.4GHz solution**

- Unmatched Interference Immunity
 - Demonstrated success in rigorous WLAN+Bluetooth environments
- Unmatched Co-location
 - Demonstrated capability for >100 nodes co-located in a single room
- Lowest total solution cost
 - Fewer external components than any other solution
 - Further device cost reductions already in development

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WirelessUSB™ Critical Considerations

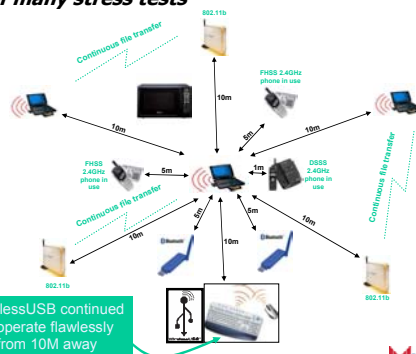


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Critical Consideration #1: Interference One of many stress tests



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Critical Consideration #5: Ease of Use

- WirelessUSB is designed for easy installation
 - Uses USB drivers to avoid software problems
 - Enables true plug-and-play
 - Best “out-of-box” experience
 - Eliminates support calls

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Summary: WirelessUSB

- WirelessUSB addresses a gap in wireless standards
 - Solves the multi-point to point problem with low cost and power
 - Open standardization will broaden its appeal
 - Gaming, remote controls, toys etc...
- WirelessUSB was designed for the Wireless Desktop
 - Focused on interference immunity, battery life, and ease-of-use
 - LS and LR are only the beginning, even lower cost solutions in development
 - Determined to repeat our USB success with WirelessUSB

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Summary: Juno WirelessUSB

- Juno Modules designed for use today!
 - Production underway on all designs
- “Drop-In” solution for existing devices
 - Minimal PCB alteration to support Juno
- Full Agency and SIG Compliance
 - International Acceptance and Operation
- Standards Based
 - Leverage USB protocol, drivers, install base
- Designed for co-habitation with existing wireless solutions
 - Extensive interoperability testing with WiFi, Bluetooth, 27MHz, and other known “cordless” protocols

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