UNIGEN CORP. WIRELESS MODULE PRODUCTS

PART NUMBER FAMILY:
JUNO-USB WIRELESSUSB™ RADIO MODULES

UGQUBE1US SERIES
SHORT RANGE BRIDGE

Issue Date: 14 September, 2005

Revision: 1.10

Revision History

Rev. No.	History	Issue Date	Remarks
0.10	First Draft	4 August 2005	Document Creation
0.20	Second Draft	5 August 2005	Addition of Soft/Firmware Applications
1.00	Third draft	14 September 2005	P/N and certification updates, PVT test inclusions
1.10	Fourth Release	30 September 2005	Output margin modified page 10

TABLE OF CONTENTS:

UNIGEN CORP. WIRELESS MODULE PRODUCTS 1

PART NUMBER FAMILY: JUNO-USB WIRELESSUSB™ RADIO MODULES 1

UGQUBE1US SERIES SHORT RANGE BRIDGE 1

Revision History 1
REFERENCE DOCUMENTATION: 4

INTRODUCTION: 4

FEATURES: 5

DESCRIPTION: 5

BLOCK DIAGRAMS: 6

Figure 1 – Functional Block Diagram 6
Figure 2 – Radio Simplified Block Diagram 6
ABSOLUTE MAXIMUM RATINGS: 7

Table 1 – Absolute Max Ratings 7
RECOMMENDED OPERATING CONDITIONS: 7

Table 2 – Recommended Conditions 7
PIN OUT FUNCTIONALITY: 7

Table 3 – Pinout 7
DC ELECTRICAL CHARACTERISTICS: 8

Table 4 – Electrical Characteristics 8
MECHANICAL CHARACTERISTICS: 8

Table 5 – Mechanical DescriptionRADIO PARAMETERS: 8
RADIO PARAMETERS: 9
Table 6 – Radio Characteristics 9
AGENCY CERTIFICATIONS: 10

Table 7 – Regulatory Agency Certifications 10
Regulatory Compliance Statement: 10
MECHANICAL DRAWINGS & PHYSICAL DIMENSIONS: 11

Figure 3 – Juno-USB Dimensions (external) 11
Figure 4 – Juno-USB Dimensions (internal) 11
FIRMWARE FUNCTIONALITY: 12

Firmware Overview 12

RadioParams Report 12
Table 8 – Radio Params 12
Table 9 – Params Report 12

Firmware Command Details 13
Table 9 – Firmware Commands 13
SOFTWARE FUNCTIONALITY: 14

Development Environment 14

Code Modules 14
COMPLIANCE TESTING: 15

ORDERING INFORMATION:* 16

CONTACT INFORMATION: 16

REFERENCE DOCUMENTATION:

The Unigen JUNO-USB (UGQUBE1US) WirelessUSB™ dongle adaptation of the Cypress Semiconductor CYWUSB6934 LS 2.4GHz DSSS Radio SOC and Cypress CY7C63743 enCoRe™ USB Combination Low-speed USB & PS/2 Peripheral Controller is represented in this document. The detail provided is information for using JUNO-USB in a digital electronic device and is only a "companion" document to Cypress Semiconductors' CYWUSB6934 documentation for the above noted part.

The CYWUSB6934 LS 2.4GHz DSSS Radio SOC 10-meter information and technical details (ex. register settings, timing, application interfaces, clocking and power management, etc.) may be obtained from the Cypress Semiconductor web site or contacting Cypress's authorized sales representatives.

The following is a list of required documents and locations known at the time of publication that accompany this datasheet.

- The CYWUSB6934 LS 2.4GHz DSSS Radio SOC Datasheet – CUWUSB6934.pdf http://www.cypress.com/cfuploads/img/products/cywusb6934.pdf
- A full explanation of software development, including all class methods, is available in the file *CY4632 WirelessUSB SW User's Guide.pdf*
- A full explanation of system firmware development, is available in the file *CY4632 Bridge FW User's Guide.pdf*

INTRODUCTION:

Unigen JUNO-USB WirelessUSB™ 10 meter bridge dongles represent the convergence of emerging wireless connectivity solutions and the USB "Plug-N-Play" ease of operation. WirelessUSB, as created by Cypress Semiconductor, is a low-cost, 2.4GHz communication protocol designed for use in commercial, industrial, consumer, and computer product applications needing highly reliable data connectivity.

The JUNO-USB bridge dongles combine Cypress Semiconductor's wireless and USB expertise with Unigen's module design, manufacturing, and testing proficiency to create production ready, pre-certified modules that are easily integrated into existing, and new product designs.

JUNO-USB bridge dongles offer immediate, drop-in design solutions and use the native Operating System HID drivers to seamlessly enumerate and operate wireless mouse and keyboard devices using the HID specification for communication with the host systems.

FEATURES:

- **CYWUSB6934 LS 2.4GHz DSSS Radio SOC (10m)**
- **Cypress CY7C63743 enCoRe™ USB Combination Low-speed USB & PS/2 Peripheral Controller**
- **Operates in the 2.4 to 2.483GHz, unlicensed frequency range (ISM – Industrial, Scientific and Medical)**
- **-90dBm receive sensitivity**
- **Up to 0dBm power output**
- **Range of 10 meters**
- **Data Rate of 62.5kbits/sec**
- **SPI interface**
  (up to 2MHz data rate)
- **Operating Voltage**
  4.0 – 5.5Vdc
- **Multiple connection interfaces available**
- **Small PCB Design:**
  UGQUBE1US
  2.295" x 0.800" x 0.425" (58.293mm x 20.32mm x 10.795mm) ±.01%
- **Complete Radio Module**
  Integrated Tuned Trace Antenna
- **Agency Pre-Certification**
  FCC/EU/ETSI/Industry Canada
  Module certified to FCC/EU compliance specifications limiting your agency compliance time and cost.
- **Agency Pre-Certification**
  Tested to comply with Analog and Digital immunity standards from around the world

DESCRIPTION:

JUNO-USB WirelessUSB™ Bridge Dongles are tightly integrated, low-cost, high-reliability 2.4GHz TX/RX communications modules for use with Human Interface Device (HID) class compliant products.

JUNO-USB Bridges use the Cypress Semiconductor CYWUSB6934 LS 2.4GHz DSSS Radio SOC device. They also employ the Cypress CY7C63743 enCoRe™ USB Combination Low-speed USB & PS/2 Peripheral Controller.

JUNO-USB bridges are a complete radio solution, capable of interfacing with a variety of wireless HID devices, and requiring only the addition of firmware if not used with the Juno-USB keyboard and mouse.

JUNO-USB bridges are 100% tested for functional operation and are certified for FCC Part 15 compliance. The modules are supplied with an integrated antenna.

JUNO-USB bridge dongles are intended for use with the Unigen Juno-USB keyboard and mouse. While the current firmware release does not support non-native HIDs, future releases will include expanded driver support. The bridges are immediately capable of communicating with a number of wireless HIDs given the addition of a customer's application-specific firmware.

JUNO-USB Bridges are less than 2"sq and plugs directly into any PC USB port. They are PS/2 and USB 1.1 & 2.0 compliant.

BLOCK DIAGRAMS:

Functional Block Diagram JUNO-USB Bridge

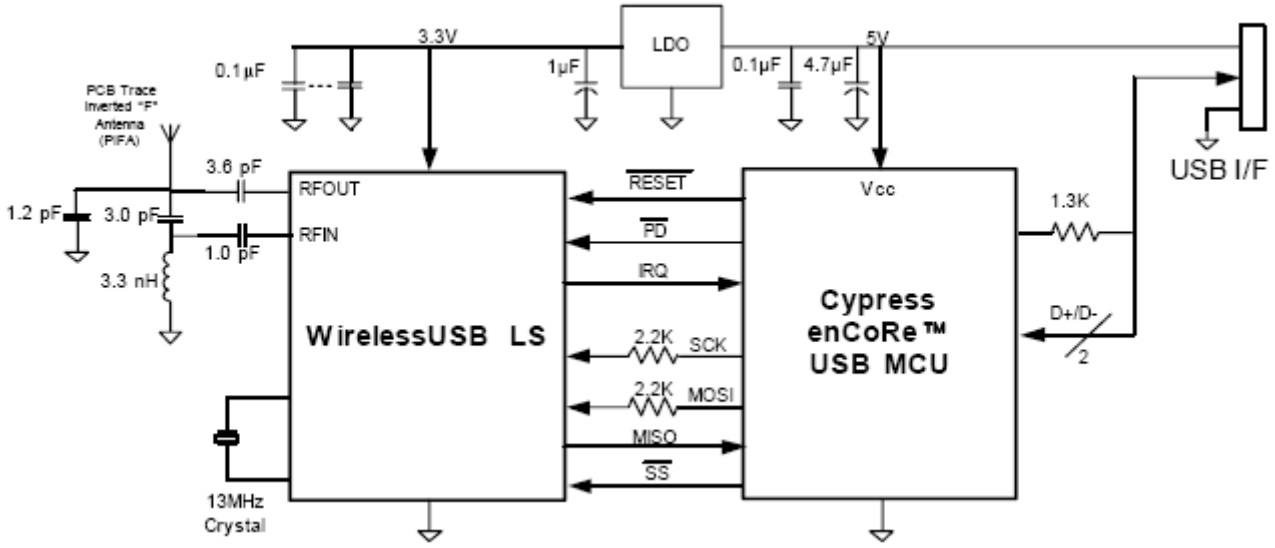

Figure 1 – Functional Block Diagram

Simplified Block Diagram CYWUSB6934 Radio Chip

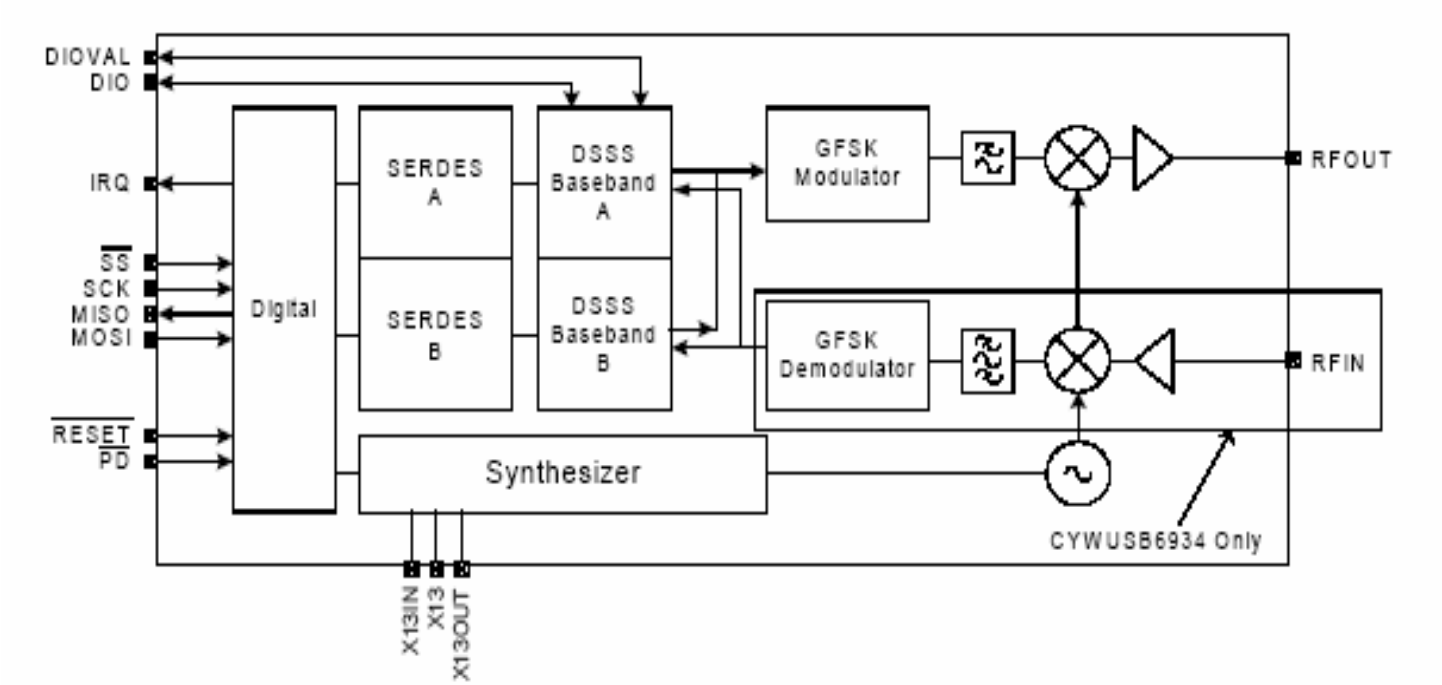

Figure 2 – Radio Simplified Block Diagram

ABSOLUTE MAXIMUM RATINGS:

Symbol	Definition	Min.	Max.	Unit
VCC	Supply Voltage	-0.5	7.0	VDC
TOC	Commercial Operating Temperature Range	0	70	°C
TS	Storage Temperature Range	-40	125	°C
VLI	VDC to Logic Inputs	-0.5	VCC + 0.5	VDC
V O/Hi-Z	VDC to Outputs in Hi-Z state	-0.5	VCC + 0.5	VDC
SDVD	Static Discharge Voltage Digital		>4000	VDC
SDVR	Static Discharge Voltage RF		>4000	VDC

Table 1 – Absolute Max Ratings

These are stress ratings only. Exposure to stresses beyond these maximum ratings may cause permanent damage to, or affect the reliability of this module. Avoid using the module outside the recommended operating conditions defined below. This module is ESD sensitive and should be handled and/or used in accordance with proper ESD mitigation.

RECOMMENDED OPERATING CONDITIONS:

Symbol	Description	Value			
		Min.	Typ.*	Max.	Unit
VCC	Supply Voltage	4.0	5.0	5.5	VDC
TOC	Commercial Operating Temperature Range	0	25	70	°C
GND	Ground Voltage		0		VDC
	Humidity Range	10.0	40.0	90.0	% RH

*= Measured with 5.0VCC at 25ºC

Table 2 – Recommended Conditions

PIN OUT FUNCTIONALITY:

Pin ID	Function (host)	Function (device)
1	Vcc	Vcc
2	D-	D-
3	D+	D+
4	GND	GND

Table 3 – Pinout

Vcc: Voltage supply current 5.0V
D-: Data line uses half-duplex differential signaling to combat the effects of electromagnetic noise on longer lines.
D+: Data line uses half-duplex differential signaling to combat the effects of electromagnetic noise on longer lines.
GND: Ground Voltage 0 Vdc

DC ELECTRICAL CHARACTERISTICS:

Symbol	Description	Condition(s)	Value			
			Min.	Typ.*	Max.	Unit
VCC	Supply Voltages		4.0	5.0	5.5	VDC
VOH1	Voltage Output High	At IOH = –100.0µA	VCC-2	VCC		VDC
VOL	Voltage Output Low	At IOL = 2.0 mA		0.0	0.8	VDC
VIH	Voltage Input High		4.0		VCC	VDC
VIL	Voltage Input Low		-0.5		0.8	VDC
IIL	Input Leakage Current	0 < VIN < VCC	-1	0.30	+1	µA
ISLEEP	Power-down current consumption	PD = Low		25	75	µA
TX AVG ICC1	Mean transmitter current consumption [1]	no handshake		6.0		mA
TX AVG ICC2	Mean transmitter current consumption [2]	w/handshake		8.0		mA
RX ICC (Peak)	Current consumption during receive			60.0		mA
TX ICC (Peak)	Current consumption during transmit			69.1		mA
MTBF		Calculated			>87,600	Hours

Table 4 – Electrical Characteristics

*= Measured with 5.0VCC at 25ºC

[1]= Mean Icc when transmitting a 5-byte packet (3 data bytes + 2 bytes of protocol) every 10ms using the Wireless USB LS 1-way protocol.

[2]= Mean Icc when transmitting a 5-byte packet (3 data bytes + 2 bytes of protocol) every 10ms using the Wireless USB LS 2-way protocol.

MECHANICAL CHARACTERISTICS:

Item	Description	Specification
1	PCB Material	FR-4
2	PCB Layers	1
3	Connector Type	USB
4	PCB Number	1
5	Flammability Rating	UL94 V-0
6	UGQUBE1US Dimensions	2.295" x 0.800" x 0.425" (58.293mm x 20.32mm x 10.795mm) ±.01%
7	User Serviceable Parts	None

Table 5 – Mechanical Description

RADIO PARAMETERS:

Parameter Description	Condition	Min.	Typ.	Max	Unit
RF Frequency Range		2.400		2.483	GHz
Radio Receiver (T = 25ºC, Vcc = 3.3V, fosc = 13.000MHz, X13OUT off, 64 chips/bit, Threshold Low = 8, Threshold High = 56, BER ≤10^{-3}					
Sensitivity			-90		dBm
Maximum Received Signal		-20	-10		dBm
RSSI Value for PWR_{in} >-40dBm			28-31		
RSSI Value for PWR_{in} <-95dBm			0-10		
Interference Performance					
Co-channel Interference rejection Carrier-to-Interference (C/I)	C = –60 dBm		11		dB
Adjacent (1 MHz) channel selectivity C/I 1 MHz	C = –60 dBm		3		dB
Adjacent (2 MHz) channel selectivity C/I 2 MHz	C = –60 dBm		-30		dB
Adjacent (> 3 MHz) channel selectivity C/I > 3 MHz	C = –67 dBm		-40		dB
Image[22] Frequency Interference, C/I Image	C = –67 dBm		-20		dB
Adjacent (1 MHz) interference to in-band image frequency, C/I image ±1 MHz	C = –67 dBm		-25		dB
Out-of-band Blocking Interference Signal Frequency					
30MHz – 2399MHz except (FO/N & FO/N± 1MHz)	C = –67 dBm		-30		dBm
2498MHz – 12.75GHz, except (FO*N & FO*N±1MHz)	C = –67 dBm		-20		dBm
Intermodulation	C = –67 dBm, Δf = 5, 10MHz		-39		dBm
Spurious Emission					
30MHz – 1GHz				-57	dBm
1GHz – 12.75GHz (except 4.8GHz – 5.0GHz)				-47	dBm
4.8GHz – 5.0GHz				-37	dBm
Radio Transmitter (T = 25ºC, Vcc = 3.3V, fosc = 13.000MHz)					
Maximum RF Transmit Power	PA = 7		0		dBm
RF Power Control Range			30		dB
RF Power Range Control Step Size	Seven steps, monotonic		4.3		dB
Frequency Deviation	PN Code Pattern 10101010		270		kHz
Frequency Deviation	PN Code Pattern 11110000		320		kHz
Zero Crossing Error			±125		ns
Occupied Bandwidth	100-kHz resolution bandwidth, -6dBc	500			kHz
Initial Frequency Offset			±75		kHz
In-Band Spurious					
Second Channel Power (±=2MHz)				-30	dBm
≥ Third Channel Power (≥3 MHz)				-40	dBm
Non-Harmonically Related Spurs					
30MHz – 12.75GHz				-57	dBm
Harmonic Spurs					
Second Harmonic				-20	dBm
Third Harmonic				-30	dBm
Fourth and Greater Harmonics				-47	dBm

Table 6 – Radio Characteristics

AGENCY CERTIFICATIONS:

Agency	Test Performed	Type	Limit	Result	Margin
EU	Radiated Spurious Emissions	30-12.75MHz Transmit Mode	EN 300 328	PASS	-4.6dB @ 4804MHz
		30-12.75MHz Transmit Mode	EN 300 328	PASS	-4.9 @ 177.01MHz
FCC 15.247	Radiated Emissions	30 25,000 Spurious Emissions	FCC Part 15.209/15.247 (c)	PASS	Results on File
		6dB Bandwidth	15.247(a)	PASS	960kHz
		99% Bandwidth	IC RSS-210	PASS	1.175MHz
		Output Power	15.247(b)	PASS	100mW (SARS) 1W
		Power Spectral Density (PSD)	15.247(d)	PASS	3.06dBm
		Bandedge	FCC Part 15.209 /15.247(c)	PASS	Results on File
		Out of band	15.247(c)	PASS	Results on File
EU	Radio Performance Test	Output Power, Power spectral density at normal conditions	EN 300 328-1	PASS	Results on File
		Frequency Range at normal conditions	EN 300 328-1	PASS	Results on File
		Output Power over extreme conditions	EN 300 328-1	PASS	Results on File
		Frequency Range over extreme conditions	EN 300 328-1	PASS	Results on File
		Conducted spurious emissions, 30MHz - 12750MHz, transmit mode	EN 300 328-1	PASS	Results on File
		Conducted spurious emissions, 30MHz - 12750MHz, receive/stand-by mode	EN 300 328-1	PASS	Results on File
	Radiated Spurious Emissions	30 - 12,750 MHz -Spurious Emissions Transmit Mode	EN 300 328 V1.2.1	PASS	Results on File
		30 - 12,750 MHz -Spurious Emissions Receive Mode	EN 300 328 V1.2.1	PASS	Results on File

Table 7 – Regulatory Agency Certifications

Regulatory Compliance Statement:

The module has been tested and certified against the relevant requirements of standards: EN 300 328, EN 301 489-17, FCC part 15 and Industry Canada RSS-210. The module is certified by the regulatory authorities in the USA and Canada and complies with the applicable essential requirements of the Radio & Telecommunication Terminal Equipment (R&TTE) directive in the EU. The module can thus be incorporated into products sold worldwide with little or no additional testing of the module itself. ***The end product must meet the appropriate technical requirements that apply to that product type but re-certification of the radio module is not required in the USA and Canada.***

In the EU, the integrator is responsible for evaluating their product type per the essential performance requirements of the R&TTE directive (except those associated with the module), declaring compliance and then notifying the member states prior to marketing the product (because the module uses a frequency band that is not harmonized in the EU). It is the responsibility of the module integrator to obtain the necessary approvals to sell products incorporating this module in other countries outside of North America and the EU. The report of measurements performed on the module in compliance with the FCC rules and EN standards can be used in these submittals (as the requirements in many other markets around the world are based in part or in whole on the standards prevalent in North America and the EU).

MECHANICAL DRAWINGS & PHYSICAL DIMENSIONS:

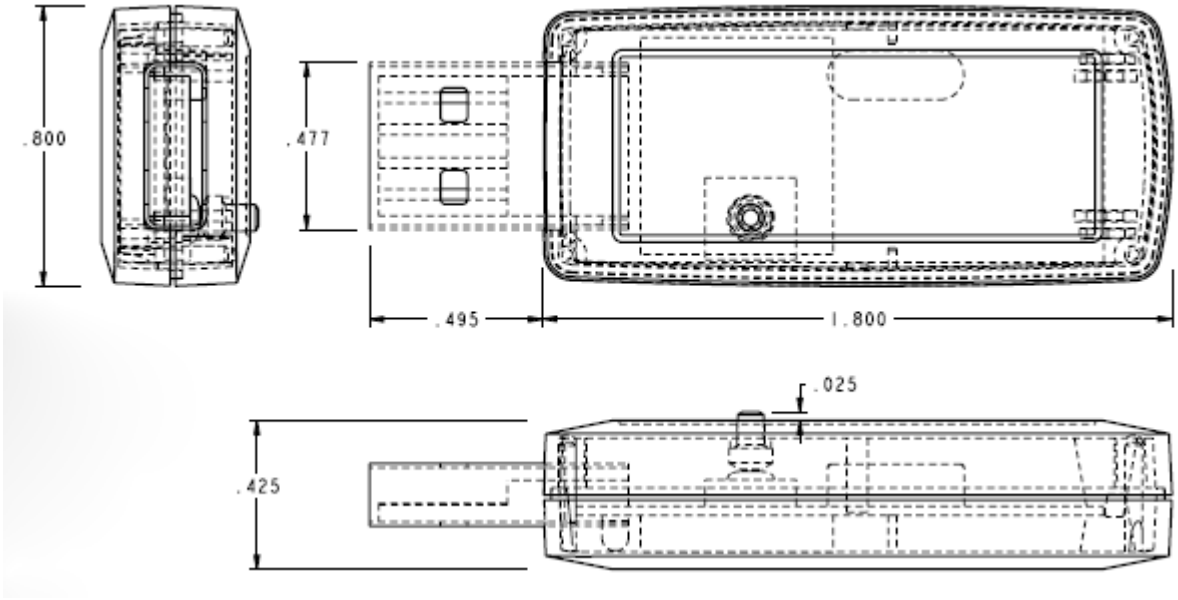

Figure 3 – Juno-USB Dimensions (external)

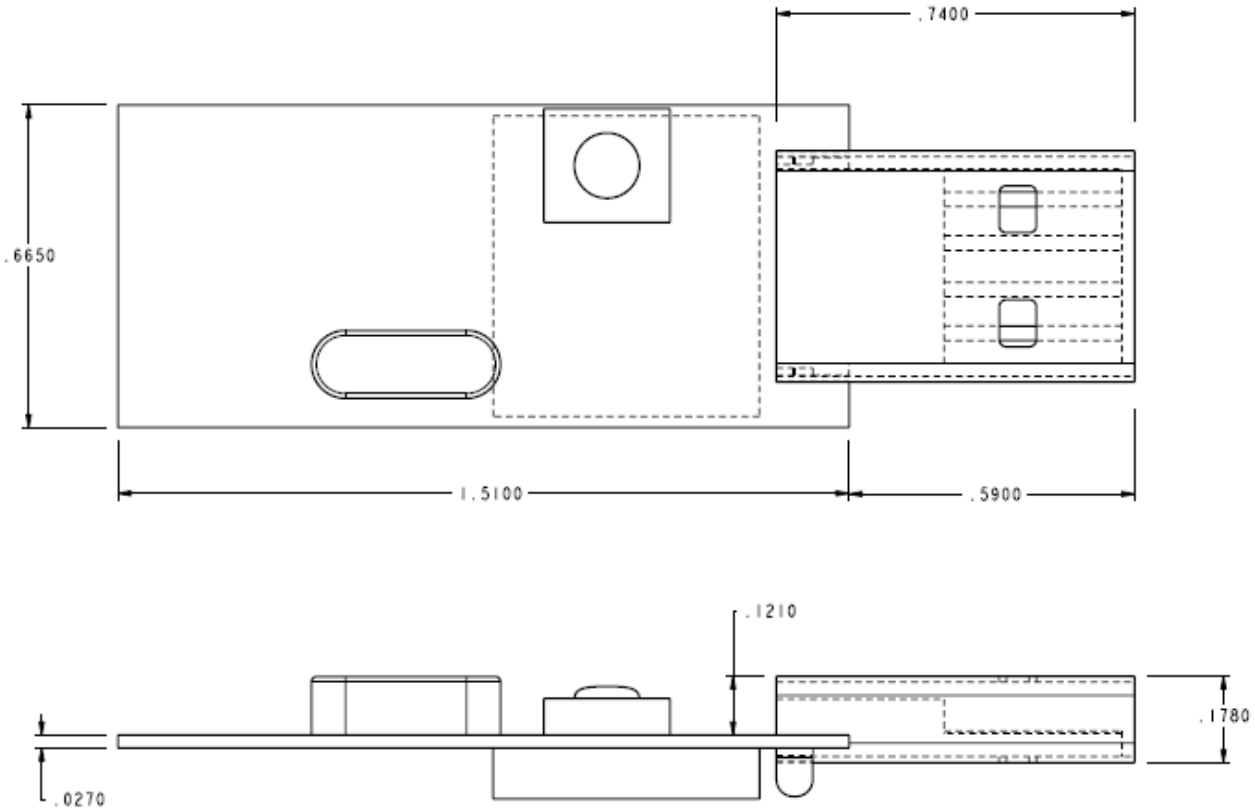

Figure 4 – Juno-USB Dimensions (internal)

FIRMWARE FUNCTIONALITY:

Firmware Overview

The bridge connects the remote WirelessUSB LS peripheral to a low-speed USB host. This firmware supports 2-way communication with bridge and HID devices configured as transceivers.

Standard USB HID packets are encapsulated inside WirelessUSB LS packets, which also contain a packet header and checksum to help the bridge correctly process the USB HID data packets. Valid packets are then sent via USB to the USB host.

CYASM.EXE version 1.96 or higher is required to compile the bridge firmware. To compile type the following at a command prompt: *cyasm wusb-ls-main.asm*

The CY7C63000 device programmer was used to program the OTP enCoRe chips. The CY3083-07 adapter board is required. The CY3654 Developer Kit and CY3654-PO5 Personality Board are required to emulate the enCoRe (CY7C63743-PC).

RadioParams Report

The WirelessUSB LS Bridge implements a mechanism to report the radio parameters of attached HID devices via the USB control endpoint. The RadioParams HID report is a vendor-defined HID report for communicating several radio parameters of the WirelessUSB LS HID devices.

Usage ID	Usage Name	Usage ID	Usage Name
0x00	Undefined	0x 21	WirelessUSB Channel
0x01	WirelessUSB Keyboard	0x 22	WirelessUSB PN Code
0x 02	WirelessUSB Mouse	0x 23	Corrupt Packets
0x03-0x1F	RESERVED	0x 24	Packets Transferred
0x 20	Battery Level		

Table 8 – Radio Params

The RadioParams Report is 8 bytes long and has the following 6 data fields:

Byte	Use	Range
0	Report ID #	0x04
1	Battery Level	0 – 0x0A
2	Channel #	0 – 0x4D
3	PN Code	0 – 0x30
4-5	Corrupt Packets	0 – 0xFFFF
6-7	Packets Transferred	0 – 0xFFFF

Table 9 – Params Report

Firmware Command Details

Command	Function
Reset	On reset, the firmware initializes the radio and then waits until the USB host enumerates the device.
Radio_init	This routine brings the radio out of reset and waits for the radio to be ready
Load_pn_code	This routine loads the PN Code from ROM into the radio registers.
Setup_rx	Puts the radio into receive mode.
Setup_tx	Puts the radio into transmit mode.
Endpoint0	USB control endpoint handler. This interrupt handler formulates responses to USB SETUP and CONTROL transactions.
Endpoint1	This interrupt routine handles the reserved data endpoint 1 (for a mouse). This interrupt happens every time a host sends an IN on endpoint 1. The data to send (NAK or data packet) is already loaded, so this routine just prepares the DMA buffers for the next packet.
Endpoint2	This interrupt routine handles the reserved data endpoint 2 (for a keyboard). This interrupt happens every time a host sends an IN on endpoint 2. The data to send (NAK or data packet) is already loaded, so this routine just prepares the DMA buffers for the next packet
Power_on_mode	Initializes the channel and PN Code(s) and jumps to ping_mode.
Ping_mode	Implements ping mode as described in WirelessUSB LS 2-Way HID Systems application note. Upon finding an available channel the bridge will jump to idle_mode. If the bind button is pressed while in ping mode the bridge will jump to bind_mode.
Idle_mode	Implements idle mode as described in WirelessUSB LS 2-Way HID Systems application note. After establishing a connection the bridge will jump to connected_mode. If the bind button is pressed while in idle mode the bridge will jump to bind_mode.
Bind_mode	Implements bind mode as described in WirelessUSB LS 2-Way HID Systems application note. After binding with a HID (or timing out) the bridge will jump to ping_mode.
Connected_mode	Implements connected mode as described in WirelessUSB LS 2-Way HID Systems application note. When a data packet is received from a WirelessUSB device, the packet is processed and the appropriate HID report is submitted to the USB by process _data routine.
Process_data	This routine checks for retransmitted packets (and discards the packet if it is a retransmission). If the packet contains new data it is loaded into the USB DMA buffer (app_data_received_a/b routines send the data to the USB host when it is polled for data). Receipt of the data from the device is then acknowledged via an ACK or an ACK/DATA packet.
Process_rx_init	This routine is called when an interrupt occurs while the radio is in Receive mode. The values of the valid and data registers are read and stored. If the end of frame (EOF) is reached a flag is set.
Verify_packet	The parity is computed and compared to the received parity. If the parity is correct the valid field is then used to fix up to eight bit errors (one bit per bit position) using the valid bytes, received data and the checksum field. If more than one bit per bit position is invalid the packet is marked corrupt. After the packet has been fixed (if necessary) the checksum is calculated and compared to the received checksum. If the checksum is correct the packet is marked as valid.
Tranmit_sys	Handles the transmission of all non-application packets such as Bind Response, Connect Response, Ping and ACK packets.
Transmit_app	Handles the transmission of all application packets such as DATA and ACK/DATA packets.

Table 9 – Firmware Commands

SOFTWARE FUNCTIONALITY:

Development Environment

The following tools are required to build and develop the WirelessUSB Software applications.

- Microsoft Visual C++ .NET
- Windows Driver Development Kit (DDK)

A Microsoft Windows based PC is used for tool execution. The Microsoft Visual C++ .NET solution file can be found at the following location:
.\WirelessUSBSysTray\WirelessUSBTray.sln

Code Modules

There are three main modules contained in the WirelessUSB Software:

• USB HID API module – generic class interface to HID Class compliant devices

The USB HID API module defines two classes, CHidDevice and CHidManager. The CHidDevice class is the primary interface to a HID device, while the CHidManager class keeps track of the arrival and removal of HID devices, along with notification to the application of such events. The building blocks for the USB HID API module was derived from the HCLIENT sample code provided in the Windows DDK. This module was designed to provide a generic interface to any HID Class compliant device and is not expected to require any modification.

• System Tray module – generic class to create and control an icon on the system tray

The System Tray module defines the CCySysTray class which provides the interface to the system tray for the application. This module is not expected to require any modification.

• WirelessUSB System Tray Application module – main system tray application module

The CWirelessUSBTrayApp class performs application initialization and removal, in addition it parses command-line parameters used to enable or disable the system tray application from being run at startup.

COMPLIANCE TESTING:

Unigen has certified this solution with the FCC, IC and ETSI for both digital and radio performance and compliance. At the time of this release Unigen has not submitted the solution for formal acceptance as a USB compliant device with USB.org. We are asking the post Unigen OEM to complete this testing, as it can be specific to their ultimate solution.

Here is what you need to do.

First of all, start planning for it early on. For USB, there are compliance workshops ("PlugFests") run by the USB Implementer's Forum approximately once per quarter, but they can fill up quickly. Check the USB-IF website (www.usb.org) for the date of upcoming compliance workshops and reserve a spot early. Also, don't forget that there is a checklist (available on the web) that must be filled out ahead of time and brought with you. This is also a common oversight. The alternative to PlugFest is to use an approved test house to obtain your certification, but there will of course be a cost for this.

It is important to understand the different types of USB compliance testing that exist, and how the design of an USB device is impacted. To make certain that you have the most up to date information it is highly recommended that you check the USB-IF website for current compliance policies.

ORDERING INFORMATION:*

UNIGEN PRODUCT GROUP –	FORM FACTOR	PROCESS TECH	WIRED TECH	MEMORY DENSITY	POWER	ANTENNA	TEMPERATURE RATING
UGQ = Processor Board	**UB** = USB Bridge	**E** = encore chip	**1US** = CY6934-48 WirelessUSB	**[ ]** = none	**50** = 5.0V DC	**A** = Integrated	**[ ]** = Commercial (-20 – 70°C) **E** = Extended (-40 - 85°C)

***Module based on the Cypress Semiconductor CYWUSB6934-48 WirelessUSB™ LS 2.4GHz DSSS Radio SoC device.**

Contact your Unigen Sales Representative for additional information or visit the Nexus™ Wireless Products section of our web site (www.unigen.com).

CONTACT INFORMATION:

CORPORATE HEADQUARTERS

Unigen Corporation
45388 Warm Springs Boulevard
Fremont, CA 94539

Telephone: **1.510.688.2088**

Fax: **1.510.661.2788**
Email: **Support@unigen.com**
Web: **www.unigen.com**
Customer Comment: **1.800.826.0808**