Bluetooth: New Freedom, New Possibilities

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The Bluetooth Specification is still preliminary. All information regarding Bluetooth is subject to change without notice.

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Value Proposition

Problem:
* Too many wires and connectors.
* Portable devices don’t work well together.
* No anywhere seamless connectivity.

Great solution:
* A revolutionary program to link portable PC’s and electronic devices wirelessly and seamlessly.

Right players:
* Broad Industry support committed to deliver products from telecom and computing industries.
Many Useful Mobile Devices

Today

Using them . . .

• Independently – each has different information
• Together – requires multiple cables, connectors

Imagine .

• Universal mobile connectivity
• Ultimate synchronicity
• . . . without wires

New Freedom and Possibilities
Bluetooth Goal . . .

- Wireless Link Between All Mobile Devices

Bluetooth Is . . .

- Major joint computing and telecomm industry initiative
- Plan to deliver a revolutionary radio-based solution
  - Cable replacement, no line of sight restrictions
  - Perfect for mobile devices – small, low power, low cost
  - Open specification
New Freedom and Possibilities . . .

The Internet Bridge

PSTN, ISDN, LAN, WAN, xDSL
The Ultimate Headset.....

- Keep your hands free with the ultimate solution for the:
  - Road.
  - Office.
  - Car.

The Three In One Phone

Office Hotel Out and About

LAN PSTN PSTN
The Automatic Synchronizer

Hidden Computing
The Instant Postcard

. . . And Countless Other Possibilities
Technical Features...

- **10 m personal bubble**
  - 8 devices per piconet.
  - Up to 10 picomes in bubble.
- **Works in globally free spectrum (2.45 GHz, ISM band)**
  - Globally available frequency, 89 MHz of spectrum available.
  - FFH/DS Hybrid Radio.
- **$20 projected to come down to around $5 OEM integration cost**
  - Designed for CMOS single chip solution.
- **Data/voice services:**
  - 432 Kbps (full duplex), 721/56 Kbps (asymmetric), 384 Kbps (TMS2000)
  - Future version: 2 Mbps.
  - 3+ simultaneous full duplex voice per piconet (CVSD@64 Kbps).
  - Simultaneous voice/data capable.
- **Security**
  - Designed to be as secure as a wire (public/private key authentication, streaming cipher up to 64 bit based on A5 security).
- **Power**
  - 2.7V, 30 uA in sleep, 60 uA hold, 300 uA standby, 8-30 mA transmitting.
- **Open industry standard**
  - Mobile computers, Cell phones, Handhelds, Data Access Points.

Technically Speaking...

**Bluetooth Radio Modules**

*Preliminary Specifications...*

- **Small**
  - 0.5 square inches in production
  - Eventually moving to a single chip solution
- **Low power**
  - 2.7V
  - < 0.1 watt active power
- **Simultaneous voice/data capable**
  - 1Mbps robust transfer rate
Bluetooth SIG Members

- 3COM (Palm, MHz, USR)
- AXIS
- AST
- CASIO
- CETECOM BmbH
- Compaq
- Dell
- Ericsson
- Intel
- IBM
- Lucent
- Metricom
- Motorola
- Nokia
- Puma Technologies
- Qualcomm
- Symbionics
- Toshiba
- TDK
- UET
- VLSI
- XIRCOM

And More Are Coming

Timeline

Initiative Announcement
May 20th, 1998

Industry Review

Products Expected
2H’99

1998
1999

Simon Ellis, Intel

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Development schedule

- Intel is working on the program details
  - Does this schedule support 2H99 product launch?
  - What level of support is required from Intel?
  - What are your key questions/concerns?

Steps to Join the program

- Step 1: Visit public web site (www.bluetooth.com)
  - Usage models, technical information, sign-up information.
  - Covered by today’s presentation.
- Step 2: Review and sign legal agreement.
- Step 3: Visit the Bluetooth member web site.
  - Review current version of specification.
  - Review Frequently Asked Questions (FAQ).
  - Post questions, provide feedback.
  - List of Bluetooth suppliers.
- Step 4: Members added to the e-mail lists (Reflector).
- Step 5: Engage with relevant task teams and work on your product development.
  - Design guides, data sheets, support.
  - Testing, Functional, certification, regulatory.
  - Plan Product development and support requirement.
Summary

- Collaboration of companies working together to develop and deliver Bluetooth Systems
- Bluetooth goal: Enable new freedom and capability for true anywhere, anytime computing and communications
- For more information: www.bluetooth.com