

Gi-Fi: Speed up your Life

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Gi-Fi means gigabit wireless. The Gi-Fi is the world's first transceiver integrated on a single chip that operates at 60GHz on the CMOS process. It allows wireless transfer of video and audio data up to 5GB/ second , at one-tenth the cost, 10 times the current maximum wireless transfer rate. It transfer data within an indoor environment usually within a range of 10ms. NICTA researchers have chosen to develop this technology in the 57-64GHz unlicensed frequency band as the millimeter-wave range of the spectrum makes possible high component on-chip integration as well as allowing for the integration of very small high gain arrays. The 7GHz of spectrum results in a very high data rates, up to 5 gigabits per second to users within an indoor environment, usually within a range of 10 meters. The gi-fi satisfies the standards of IEEE 802.15.3C

Keywords: P-ISM, wi-fi, CMOS, display camera, CPU pen, Battery, Virtual keyboard, Bluetooth, Wireless Connectivity, etc.

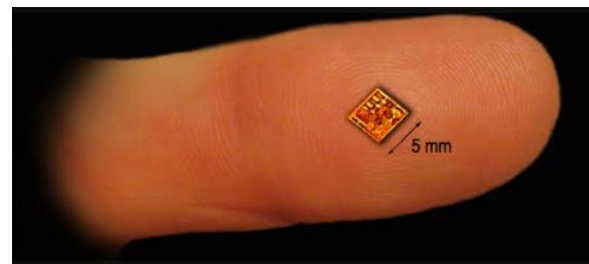


I. INTRODUCTION:

Gigabit Wireless is the world's first transceiver integrated on a single chip that operates at 60GHz on the CMOS (complementary metal-oxide-semiconductor) process. Gi-Fi will help to push wireless communications to faster drive. For many years cables ruled the world. Optical fibers played a dominant role for its higher bit rates and faster transmission. But the installation of cables caused a greater difficulty and thus led to wireless access. The foremost of this Bluetooth which can cover 9-10mts . It is the world's first transceiver integrated on a single chip that operates at 60GHz on the CMOS process. It will allow wireless transfer of audio and video data up to 5 GB/s, 10 times the current Maximum wireless transfer rate, at one-tenth of the cost, usually within a range of 10 meters. In fact, Gi-Fi is a wireless transmission system which is 10 times faster than Wireless -Fidelity and it is expected revolution networking in homes and offices by implementing high-speed wireless environments. It utilizes a 5mm square chip and a 1mm wide antenna burning less than 2milli watts of power to transmit data wirelessly over short distances, much like Bluetooth. Gi-Fi technology provides many features such as small form factor ease of deployment,

enabling the future of information management, low power consumption , high speed of data transfer etc. With growing consumer adoption of "High-Definition" (HD) television, low cost chip and other interesting features and benefits of this new technology it can be predicted that the anticipated worldwide market for this technology is vast. The new technology is predicted to revolutionize the way household gadgets talk to each other. It can be considered as a challenger to Bluetooth rather than Wi-Fi and could find applications ranging from new mobile phones to consumer electronics. Gigabit Wireless allows a full-length high definition movie to be transferred between two devices in seconds. to the higher megapixel count on our cameras, the increased bit rate on our music files, the higher resolution of our video files. Within five years, we expect Gigabit Wireless to be the dominant technology for wireless networking. By that time it will be fully mobile, as well as providing low-cost, high broadband access, with very high speed large files swapped within seconds which will develop wireless home and office of future. Gi-Fi potentially can bring wireless broadband to the enterprise in an entirely new way. Enhancements to next generation gaming technology is one of the other benefits of this technology.

The Nitro chipset in Gi-Fi technology by offering reduced size and power consumption, can be used to send and receive large amounts of data in a variety of applications, it is able to transfer gigabits of data within seconds and therefore it can be used for big data file transmission and it is expected that this chipset replaces "High Definition Multimedia Interface" (HDMI) cables and could develop wireless home and office of future. The new GI-FI wireless system provides Multi-gigabit wireless technology that removes the need for cables between consumer electronic devices and is More than hundred times faster than current short-range wireless technologies such as Wi-Fi and Bluetooth . This technology with high level of frequency re-use can satisfy the communication needs of multiple users within a small geographic region.



i. WHY GI- FI ?

The reason for pushing into Gi-Fi technology is because of slow rate, high power consumption, low range of frequency operations of earlier technologies i.e. Bluetooth and WI- FI.

II. GIGABIT WIRELESS FEATURES

This Gi-Fi technology allows wireless uncompressed high definition content and operates over a range of 10 meters without interference. Gi-Fi chip has flexible architecture. It is highly portable and can be constructed in everywhere. Entire transmission system can be built on a cost effective single silicon chip that operates in the unlicensed, 57-64 GHz spectrum band. Gigabit Wireless technology also enables the future of information management, is easy to deployment with the small form factor.

3.1 Capacity Of High Speed Data Transfer

The data transfer rate of Gigabit wireless technology is in Gigabits per second. Speed of Gi-Fi is 5 Gbps; which is 10 times the data transfer of the existing technologies. Providing higher data transfer rate is the main invention of Gi-Fi. An entire High-Definition (HD) movie could be transmitted to a mobile phone in a few seconds, and the phone could then upload the movie to a home computer or screen at the same speed.

3.2 Interference in Data Transfer

It uses the 60GHz millimeter wave spectrum to transmit the data, which gives it an advantage over Wi-Fi. Wi-Fi's part of the spectrum is increasingly overfill, sharing the waves with devices such as "cordless phones", which leads to slower speeds and interference. But the millimeter wave spectrum (30 to 300 GHz) is almost uninhabited, and the new chip is potentially 100 of times more faster than the average home Wireless- Fidelity technology.

3.3 Scope

The development will enable the truly wireless office and home of the future. As the integrated transceiver is extremely small, it can be embedded into devices. The breakthrough will mean the networking of office and home equipment without wires will finally become a reality.

3.4 Provides High Security

Gi-Fi technology is based on IEEE 802.15.3C and this standard provides more security since it provides optional security in the link level and service level. Point-to-point wireless systems operating at sixty GHz have been used for many years by the military for satellite to satellite communications and by the intelligence community for high security communications.



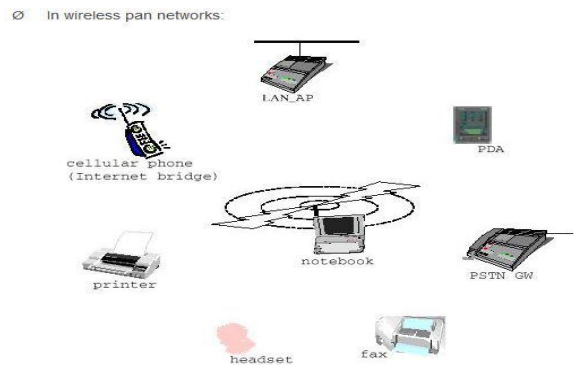
III. APPLICATIONS OF GI-FI TECHNOLOGY

1) Gi-Fi technology has many attractive features that make it suitable for use in many places and devices. Gi-Fi in a wide range of devices including tablets, personal computers, and smart phones. The technology's fast data-synchronization rates enable the fleeting transfer of video, bringing the wireless office closer to reality.

2) Gi-Fi technology is able to transfer gigabits of data within seconds and therefore it can be used for very big data file transmission and it is expected that this chipset replaces High Definition Multimedia Interface cables and could develop wireless home and office of future.

3) This technology can be effectively used in wireless pan networks, Ad-hoc information distribution with Point-to-Point network extension, Inter-vehicle communication systems, media access control (MAC), imaging and other applications.

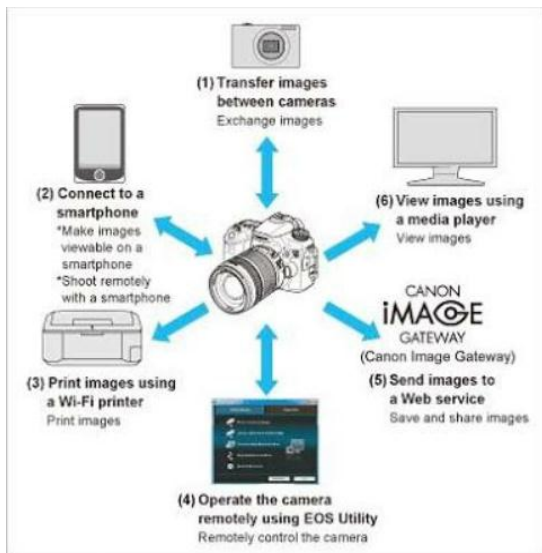
4) Gi-Fi technology also can be used in broadcasting video signal transmission system in sports stadiums and mm-Wave video, video-signals transmission systems. The technology could also be used for beaming full High Definition video in real-time and could be used by notebooks and other computers to wirelessly connect virtually all the expansion needed for a docking station, including a secondary display and storage.



IV. RESULTS

In recent years, new wireless local area networks (WLANs) such as Wi-Fi and wireless personal area networks (WPAN) such as Bluetooth have become available. Wireless USB, which matches the same range but roughly the same 480Mbps peak speed of its wired equivalent. In new trends Gi-Fi wireless technology has been developed and can be replacement for technologies such as Bluetooth and ultra-wideband (UWB). The process of Gi-Fi would use a chip that transmits at an extremely high 60GHz frequency versus the 5GHz used for the fastest forms of Wi-Fi.

The sheer density of the signal would allow a chip to send as much as 5 gigabits per second. While the spectrum would limit the device to the same 33-foot range as Bluetooth or UWB, it could theoretically transfer an HD movie to a cell phone in seconds. Mixing and signal filtering used in Gi-Fi technology would keep the signal strong versus the longer-ranged but slower and more dropprone Wi-Fi option of today. The chip in Gi-fi would likely cost is less



V. BENEFITS OF GI-FI TECHNOLOGY

The most important benefits of the Gi-Fi technology are as follows:

6.1 Removing Cables

For many years cables ruled the world. Optical fibers played a dominant role for its higher bit rates and faster transmission. But the installation of cables caused a greater difficulty and thus led to wireless access. The standard's original limitations for data exchange rate and range and high cost of the infrastructures have not yet made it possible for Wi-Fi to become a good replace for the cables. Gi-Fi technology Removes need for cables to connect consumer electronics devices and all the devices can be connected in order to transmit the data wirelessly.

6.2 Cost of Chip is low

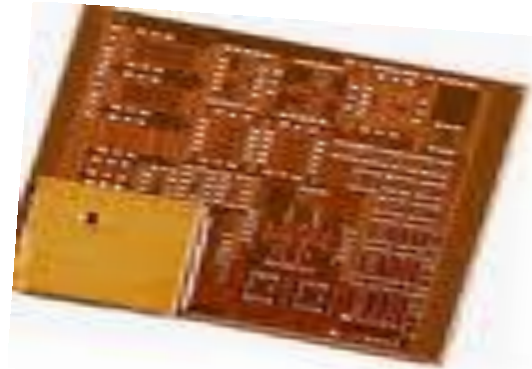
Gi-Fi's chip uses only a tiny one-millimeter-wide antenna and less than 2mili watts of power. Low-cost chip allows technology to be readily incorporated into multiple devices. The chip in Gi-fi would likely cost less to build . Then a small design would allow cell phones and other small devices to add the technology without significantly drive up the price. Gi-Fi is based on an open, international standard. Mass adoption of the standard, and the use of low-cost, mass-produced chipsets, will drive costs down dramatically, which is very less in compare to present technologies.

6.3 Privacy and Security Encryption technology in Gi-Fi ensures privacy and security of content. About 70 per cent of firms have deployed their WLAN in a secure firewall zone but are still using the old WEP protocol, which does not protect the application layer effectively, so better encryption is urgently needed.

6.4 Flexibility

One of the problems with wire connections and cables is complexity for connecting, but in the Gigabit wireless technology simplicity is one of the features. Simple connection improves the consumer experience. The benefits related to the

Gi-fi technology that can be achieved by the deployment and use of this technology.



VI. CONCLUSIONS

Gi-Fi has given and it is conspicuous that more research should be done in the field of this new wireless technology and its applications .The Bluetooth which covers 9-10mts range and wi-fi followed 91mts .no doubt introduction of wi-fi wireless network has proved a revolutionary solution to bluetooth problem the standard original limitations for data exchange rate and range, number of chances, high cost of infrastructure have not yet possible for Wireless-Fidelity to become a power network, then towards this problem the better technology despite the advantages of rate present technologies led to the introduction of new ,more up to date for data exchange that is Gigabit-Fidelity. The comparison is performed between Gigabit-Fidelity and existing wireless technologies in this paper shows that these features along with some other benefits that make it suitable to replace the existing wireless technologies. It removes cables that for many years ruled over the world and provides high speed data transfer rate. Gigabit-Fidelity technology has much number of applications and can be used in many places and devices such as wireless pan networks smart phones, media access control and mm-Wave video-signals transmission systems.

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