



Gi-Fi Technology

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Abstract:-

Gi-Fi stands for Gigabit Wireless. It is a wireless transmission system which is ten times faster than other technology. The chips inside delivers an short-range multi gigabit data transfer on a local environment. Gigabit Wireless is a wireless technology which promises high speed short range data route with speeds of up to 5 Gbps within a range of 10 meters. The Gi-Fi controls the process on the 60GHz frequency band. This frequency band is currently unused. It is manufactured using (CMOS) technology. In this paper, a comparison is performed between Gi-Fi and some of the existing technologies with very high speed large files route within seconds. Its expected that Gi-Fi is going to be the preferred wireless technology used in home and office in the future.

Keywords: Gi-Fi, CMOS, Bluetooth, Wi-Fi

1. INTRODUCTION

Gigabit Wireless is the world's first transceiver that is integrated on a single chip that operates at the rate of 60 GHz in the CMOS (complementary metal-oxide semiconductor) process. This would allow wireless transfer on audio and video data's up to 5Gbps, which is ten times the current Maximum wireless route (transfer) rate, at one-tenth of the cost, generally within a

range of 10 meters. Actually, GiFi is a wireless transmission system which is ten times speeder than Wi-Fi and it was expected revolution networking in offices and homes by implementing high-speed wireless environments. It make use of a 5mm square chip and a 1mm wide antenna burning less than 2milli watts of power to transmit data wirelessly over small distances, much like Bluetooth. Gi-Fi provides many features such as easy of deployment, small form factor, giving authority to the future of information management, high speed of data transferring, low power consumption etc. With increasing consumer adoption of High-Definition (HD) television, low cost chip and other features and benefits of this new technology is that anticipated worldwide market for this technology is huge. The new technology is predicted to revolutionize the way household gadgets talk to each other.



Figure.1 GI-FI chip

GiFi can be considered as a challenger to Bluetooth rather than Wi-Fi and could find

applications ranging from new mobile phones to consumer electronics. GiFi would allow a full-length higher definition movie to be transferred between two devices in seconds to the high megapixel count on our cameras. We expect Gi-Fi to be the dominant technology for wireless networking. By this time it would be fully mobile and also provide low-cost, high broadband access, with very high speed large files swapped within seconds which will develop wireless home and office in future. Gi-Fi potentially could brought wireless broadband to the enterprise in an entirely new way. The Nitro chipset in Gi-Fi technology by offering reduced size and power, that could be used to send and receive huge amounts of data in a variety of applications, it is able to change from gigabits of data within seconds and therefore it could be used for huge data file transmission and it is expected that this chipset replaces HDMI (High Definition Multimedia Interface) cables and could develop wireless home and office of future.



Figure.2 GI-FI chip in mobile

The GiFi chip is a good news for personal area networking because there is no internet infrastructure available to cop it with. The usable prototype might be less than a year away. With the help of gigabit wireless chips the videos sharing can be possible without any hurdles. It is one of Australia's most lucrative technologies.

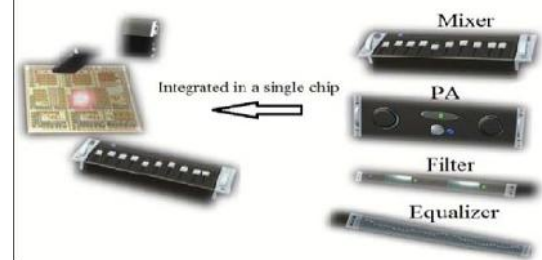


Figure.3 GI-FI chip in mobile devices

The new gigabit wireless system could produce Multi-gigabit wireless technology that remove the need for cables between the consumer electronic devices and is More than 100 times faster than current short-range wireless technologies such as Bluetooth and Wi-Fi.

2. GIGABIT WIRELESS FEATURES

The Gigabit wireless technology allows uncompressed high definition content and operates over a range of 10 meters without intrusion. The Gi-fi chip has ductile architecture. It is highly portable and it could be constructed in everywhere. Entire transmission system could built on a cost effective single silicon chip that cannot operates in the licensed, 57 to 64 GHz spectrum band.

2.1 Capacity of High Speed Data Transfer

The data transfer rate of Gigabit wireless technology is in Gbps. Speed of Gi-Fi is 5 Gigabits per second; which is the data transferred 10 times of the existing technologies. Providing higher data transferring 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 that phone could upload the movie to a home computer or screen at the same speed.

2.2 Interference in Data Transfer

It uses the 60GHz millimeter wave spectrum to transfer the data, which gives it

an advantage over Wi-Fi. Wireless Fidelity is the part of spectrum is growingly crowded, sharing the waves with devices such as cordless phones, which leads to intrusion and slower speeds. But the millimeter wave spectrum (30 to 300 GHz) is almost not occupied, and the new chip is potentially hundreds of times speedier than the average home Wi-Fi technology.

2.3 Power Consumption

The consumption of the power in technologies such as Wi-Fi and Bluetooth are 5milli watts and 10milli watts but chip of Gi-Fi uses a tiny one-millimeter-wide antenna and it has less than 2milli watts of power consumption that in compare to the current technologies is very less.

2.4 Provides High Security

Gi-Fi technology is based on 802.15.3C and this standard provides more safety since it provides optional security in the link level and service level. One Point to another point wireless systems operating at 60 GHz have been used for many years by the intelligence community for high security communications and by the military for satellite to satellite communications.

3. COMARISON BETWEEN EXISTING TECHNOLOGIES AND GIFI

Gi-Fi wireless technology has been developed and can be an extremely fast 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 pure density of the signal would allow a chip to send 5Gbps. At the same time, the spectrum would limit the device to the same 33-foot range as Bluetooth or UWB, it could theoretically send an HD movie to a cell phone in

seconds, the researchers declare. Mixing and signal filtering used in Gi-Fi technology would keep the signal strong versus the longer-ranged but slower and more drop-prone Wi-Fi option today. The chip in Gi-Fi would likely cost about \$10 or less to build. The change opens the possibility of a successor to UWB and its related technology. Wireless Universal Serial Bus, which matches the same range but roughly the same 480Mbps peak speed of its wired equivalent.

4. APPLICATIONS OF GI-FI TECHNOLOGY

1) Gi-Fi technology has many attractive features that make it suitable for many places and devices. It will reduced the chip size and power consumption, can be used to send and receive huge amounts of data in a variety of applications For example, it is calculated for use in a wide range of devices including personal computers, smart phones, and tablets. The technology's fast data-synchronization rates enable the rapid transfer of video, bringing the wireless office closer to real life.

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

3) Gi-Fi technology is able to transfer the gigabits of data within seconds and therefore it can be used for huge data file transfer and it is expected that this chipset replaces HDMI cables and could develop wireless home and office of future.

4) Gi-Fi technology also can be used in broadcasting video signal transmission system in sports stadiums and mm-Wave video video-signals transfer systems. The technology could also be used for grinning full HD video in real-time and could be used

by notebooks and other computers to wirelessly connect virtually all the expansion needed for a port replicator, including a secondary display and storage.

5. 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 Universal Serial Bus, which matches the same range but roughly the same 480Mbps peak speed of its wired equivalent. In new trends Gigabit wireless technology had been developed and can be replacement for technologies such as Bluetooth and ultra-wideband (UWB). Mixing and signal filtering used in Gi-Fi technology would kept the signal strong versus the longer-ranged but slower and more drop prone Wi-Fi option. The chip in Gi-fi cost is less.

6. BENEFITS OF GI-FI TECHNOLOGY

The important benefits of the Gigabit wireless technology are as follows:

6.1 Removing Cables

Optical fibers played a dominant role for its higher bit rates and faster transferal. But the fitting of cables caused a greater difficulty and thus led to wireless access. The standard's original restrictions 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 separates the 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 2milli watts of power. Low-cost chip allows

technology to be readily integrate into multiple number of devices. The chip in Gi-fi would cost less to build. Gi-Fi is based on an open, international standard. Mass assumption of the standard, and the use of low-cost, mass-produce chipsets, would drive costs down in dramatic, which is very less in compare to current technologies.

6.3 Privacy and Security

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

6.4 Flexibility

One of the problems with wire connections and cables is complexity for connecting, but in the Gifi technology simplicity is one of the features. Simple connection enhance the consumer experience. The benefits related to the Gigabit wireless technology that can be achieved by the deployment and use of this technology.

CONCLUSION

Gi-Fi is more conspicuous so that it gives to a start that more research should be done on this field and its applications .The Bluetooth which covers 9 to 10mts range and wi-fi that covers upto 91mts .No doubt introduction of wi-fi network has proved that an revolutionary solution to bluetooth problem the standard original limitations for data exchange rate and range, number of feasibility, high cost of infrastructure have not yet possible for wi-fi to become a power network, then to 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 GI-FI. The comparison is done between Gi-Fi 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 separates cables that for many years ruled over the world and provides high speed data transfer rate. Gi-Fi technology has many 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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