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HOLO-1 Free-Space Optical Fiber Link

UNITEL's proposed **quantum computer** system **HOLO-1** will perform multiple processing operations simultaneously. Similar to a conventional multi-processor/parallel processing computer, **HOLO-1** uses individual packets of molecules in place of a CPU to process and manipulate data. Unlike a conventional multi-processor computer though, **HOLO-1** will not be confronted with the overhead associated with dividing data instructions between CPUs. Packets of molecules are used in place of CPUs, which are inherently networked and work unitarily as a single unit. **UNITEL** is the first company to receive a patent on this form of technology.

HOLO-1 will read-or-write multiple blocks of data at one time and automatically transmit **billions-of-GB** of information via the RF-modulated pulsed-chirped laser beam. This information-carrying beam can be sent to an optical signal receiving device. "Modulators" are devices that convert one type of signal into another. (For example, a conventional PC "modem" is an abbreviation for "modulator-demodulator" which translates between computer data and transmission data for phone, cable or wireless systems.) This new type of electro-optic modulator is designed to link up with high-speed fiber-optic lines or satellites.

UNITEL's **RGB** laser-electromagnetic (EM) emitter lens eliminates blurring and distortion over long distances much like the "Cleaved-Coupled Blue-Green Laser". The monochromatic lased light is a very efficient lighting system in that the sulfur atoms (just as **Fusion Lighting**'s 1995 DOE award winning **Sulfur Gas Lamp)** emit synthetic solar light with very low heat. This is because of

the "synergy" existing with the interaction between sulfur atoms and microwaves. **Pulsing** the laser gives a higher gain and **"chirping"** increases duration.

"Optical modulators" are a result of research into finding new ways to convert light transmitted by fiber-optic lines into electrical signals. We can tie into both the Broadband and Fiber Optic Fabric areas with the **HOLO-1** FSO system, using its potential to store terabytes & the capability to retrieve those terabytes long distances at the speed-of-light. The electro-optic system has a powerful advantage over wired systems not only because of the higher speeds and lower voltage, but also because of lower signal loss and lower heat levels. Modulators are currently available that are capable of switching signals at rates of up to 100 gigabytes-per-second at levels of less than a volt. A single particle of the opto-chip material -- 100 times smaller than the diameter of a human hair -- could handle all of a major corporation's telephone, computer, television, and satellite traffic. The opto-chip would require just **1/20th of a second** to download a 2-hour movie in digital format!

UNITEL's optical "sender-receiver" system design is known in the electronics industry as "**Free-Space Optics**" (**FSO**), which can be simply described as fiber optic communications without a fiber. Small-scale FSO systems are already in operation today worldwide with several vendors doing business. Using beams of light to transmit information directly through the air, **UNITEL**'s optical networking system will greatly increase the capacity of data networks and extend the reach of today's high-capacity fiber-optic systems dramatically. **UNITEL**'s FSO EM signal beam is similar in operation as low-power infrared laser (currently used in FSO systems). But the difference is that **UNITEL**'s signal beam operates in the visible spectrum and has a much longer range capability.

HOLO-1, a quantum computing application of our U.S. patent (the ***"Acousto Electromagnetic Hologistic Resonant System,"*** Patent No. 8,417,102) represents a feasible and highly efficient quantum computer. It offers a number of strong advantages over both conventional and other quantum computer designs:

1. **HOLO-1** *1* is capable of an almost infinite storage capacity.

2. **HOLO-1** utilizes nonlinear, speed-of-light computation.

3. No electrical circuits are formed with EM (shock) wavepackets.

4. An expensive, bulky cooling system is not required (such as a with Cray XMP).

5. Optical processors such as **HOLO-1** can be inexpensively manufactured.

Driven by the combined need for high-capacity/high-speed information storage, retrieval, and computation, consumers are rapidly becoming frustrated with the inferior design of conventional computing and telecommunications systems. In response to this, **UNITEL** seeks to dovetail its patented optical/quantum computing technology with the current fiber-optic-based, broadband "rewiring effort" now (globally) underway.

Companies with the following stock symbols:

Fiber-Optic Fabric Companies:

ANCR
MTIC
STK
CPCI
TVLI
CDO
INPH
NTT

BroadBand/High-Speed Internet Companies:

AWRE
CUBE
TERN
CMTO
ADAP
JNPR
RBAK
HSAC
RTHM

A complete FSO Broadband system would include **HOLO-1** as the mainframe driver that could be combined with a modified version of Lucent's new OpticAir device as an FSO fiber optic link (see **http://www.lucent-optical.com/press/opticair.html**).

UNITEL's FSO system could be placed on rooftops or in office windows to transmit voice, data or, video traffic from point-to-point through the air. Bell Labs' 'WaveStar OpticAir' system uses dense wave division multiplexing (DWDM) technology to increase network capacity in metropolitan areas and campus environments where cost, geography, or other constraints may make fiber connections impractical. Global Crossing was the first test for the system. The first system to use DWDM technology directly through the air, Lucent's WaveStar OpticAir system will enable business customers and service providers to transmit up to 10 gigabits-per-second (Gb/s) of information between locations. At this rate, customers will be able to transmit the data contained on 15 CD ROMs through the air in less than a second. That's 65 times more information than with today's radio frequencies.

Potential applications for the **UNITEL** FSO system would include transmitting data between high-rise office building; enabling naval ships to share huge amounts of information while in port; and establishing temporary, high-capacity data links for special events.

This high-capacity technology will complement all fiber-based systems and broadband-wireless-access. We will bring optical power to network environments where deploying optical fiber is not allowable. Imagine having access from a ship at sea to a quantum computer modulated information system to allow access to information systems that only optical fibers would work.

This system is environmentally safe, highly reliable, and modular in design. Unlike the tiny, high-density streams of light emitted by laser pointers, Lucent's 'WaveStar OpticAir' system uses "expanded-beam" lasers that meet all applicable environmental safety requirements. Like other open-air transmission systems (e.g., such as wireless), the WaveStar OpticAir system will meet industry standards for performance and reliability. Implementing WaveStar OpticAir requires no spectrum licenses. And the system is easily upgradeable.

The first release of Lucent's WaveStar OpticAir system supports one wavelength at speeds up to 2.5 GB/s. A 4-wavelength system with a maximum capacity of 10 Gb/s for distances up to 5 kilometers became commercially available September of 2000.

Lucent has more than 2,400 systems installed worldwide and is a leader in DWDM technology. Lucent has the largest share (29%) of the $2.2 billion global DWDM equipment market.

Lucent's TrueWave® fiber was the first fiber specifically designed for high-capacity DWDM networks. Lucent was first to market with an 80-channel DWDM system which can transmit up to 400 GB/s of information over a single fiber.

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