News Release

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FUEL CELL GUIDELINES FOR MOBILE PCs NOW AVAILABLE

Document Will Serve as a Reference for Fuel Cell Developers

SAN FRANCISCO, June 23, 2005 -- The Mobile PC Extended Battery Life Working Group has led the effort to document requirements for powering mobile PCs, and has released its "Fuel Cell Guidelines for Mobile PCs" to the industry. These guidelines cover electrical, mechanical, control, thermal, environmental and regulatory aspects of fuel cells designed for mobile PCs.

These guidelines also address the challenges of creating both external fuel cells, which would emulate an AC adaptor and those of more integrated fuel cells – for example, replacing the second battery some users insert into a media bay.

With the increasing availability of wireless network access through Wireless LAN (WiFi) and innovations in thin and light form factors, consumers and enterprise users access their mobile PCs longer and longer for anytime, anyplace computing, entertainment and education. This has led to an increasing demand on battery life in mobile PCs.

"As the mobile PC power sources industry focuses on providing solutions for all-day computing and beyond, alternative solutions such as fuel cells will gain increasing importance," said Kamal Shah, manager, Mobility Enabling Initiative, Mobile Platforms Group, Intel Corporation and chairman of the Mobile PC Extended Battery Life Working Group. "This document guides fuel cell developers on what it takes to design fuel cells for all-day computing for mobile PCs."

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Fuel cell technology promises to power mobile PCs for full working days and longer, freeing users from the need to search for power outlets to charge batteries. Instant refueling with cartridges could extend run time almost indefinitely.

Fuel cells, however, operate differently than a battery. Instead of storing and releasing charge, a fuel cell provides a steady supply of power generated from a fuel. The power consumed by notebooks is very uneven, driven by bursts of computing, spinning up of disk drives, and other such transient events. While the stored charge of batteries can easily match this varying demand, the steady power output generated by fuel cells needs careful management of the fuel cell system to match it to such variable power demands.

Fuel cell industry companies see plenty of value in the document.

“Currently more than 60 organizations worldwide are working on Direct Methanol Fuel Cell (DMFC) technology for portable power applications. This momentum, in combination with the guidance of this working group which brings together Intel and other major companies in the mobile PC business, is a very positive impetus to the industry in its quest to develop portable fuel cells that meet the mobile users’ desire for all day runtimes and ‘anytime, anywhere’ computing,” said Jim Balcom, president and CEO of PolyFuel.

The guidelines have been helpful to STMicroelectronics to simulate these variables.

“These comprehensive guidelines enabled us to evaluate the feasibility of fuel cell designs and the related power management for notebook PCs,” said Nicola Tricomi, Segment Marketing Manager for Industrial and Power Conversion at STMicroelectronics. “The EBL Work Group does a great job collecting the necessary information that allows us to set up a real model to simulate the mobile PC power requirements.”

At the heart of a fuel cell system is the fuel cell itself, surrounded by support components. Like a car engine, many fuel cell systems need a fuel pump, cooling, support electronics and a starter battery. A full system, in fact, will often be like the power system in a hybrid vehicle, with the engine (fuel cell) and a battery sharing the power demands. In total, it can be a complex system as noted by Millennium Cell.

"These guidelines are an invaluable source of information for companies working to provide all-day, integrated power sources for notebook computer users," said Gregory Smith, marketing director of consumer electronics for Millennium Cell. "We have made this information an integral part of our product development process."

"The first step in providing a fuel cell solution is to define the problem. said David McLeod, vice president of marketing and business development at Tekion Inc. "The Notebook PC Fuel Cell guidelines prepared by the Extended Battery Life Working Group does an excellent job in defining the problem and it is now up to the fuel cell community to come up with a solution."

The document can be obtained by contacting the EBL WG at eblwginfo@eblwg.org and more information about the EBL WG can be found at www.eblwg.org.

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About Millennium Cell

Millennium Cell Inc. is engaged in the development of hydrogen energy systems for use primarily in portable electronics devices. Energy systems based on the Company's innovative and proprietary Hydrogen on Demand® technology safely generate high-quality hydrogen through the use of sodium borohydride. This chemical compound is non-combustible, high in energy density, easily distributed, and convenient for consumer use. Millennium Cell is developing technology in partnership with corporate and government entities. For more information, visit www.millenniumcell.com.

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About Tekion

Together with its partners, Tekion is integrating battery technology with Tekion's unique formic acid fuel cell "FAFC" to develop a hybrid solution which will significantly increase the amount of energy available to power portable electronics devices. Tekion is a North American company developing energy solutions to enhance mankind's desire for **Freedom through Mobility**™ by taking you **off the grid**™. While Tekion is a relatively new company, Tekion has assembled an unparalleled team of business people, and experienced fuel cell scientists and engineers.
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About PolyFuel
PolyFuel (www.polyfuel.com) is a world leader in engineering hydrocarbon-based membranes that provide breakthrough performance in fuel cells for portable electronic and automotive applications. Spun out of the former Stanford Research Institute in 1999, PolyFuel was the first company to introduce a hydrocarbon membrane for portable fuel cells and its leading-edge, hydrocarbon-based membrane has enabled a new generation of fuel cells that for the first time can deliver clean, long-running and cost-effective portable power. PolyFuel is currently working with 15 of the leading fuel cell system developers, 10 of which are major consumer electronics manufacturers ("OEMs"). The company is based in Mountain View, CA and is privately held.