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Micro-converter with remotely coupled DC power

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Microsystems are rapidly making their avenue into commercial applications. Power needs to be supplied to individual devices without requiring wires or physical tethering if the full potential of the micro-machines are to be realized. We develop direct DC power for micro-devices using remote radio-frequency (RF) generation as well as on-chip RF to DC micro-converter. The micro-scale antennas will supply as much as 10 mW of DC power in an area less than 20 mm x 20 mm. Optical coupling may not be required because the RF energy can be penetrated into the system without significant loss of energy through media. Fabrication of working remotely powered micro-chips is being developed. This technology may realize power converter for individual micro-robots, micro-probes as well as wireless power distribution to multi-chips and micro-scale energy storage devices such as batteries.

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Latest advancements in the industry of mobile technology

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Mobile technology has shown to be aggressive during the last couple of years. The market on mobile devices has grown rapidly while chip and device makers are competing hard to acquire their highest share from the market. The winner is generally the one which provide highest performance with lowest cost. This, however, requires lots of efforts. From the technology point of view, although the efforts can be spread in various domains, the goal can be divided into 2 parts: Better battery life and higher data rates. For high data rates, it actually involves user higher capacity for the same user experience, better user experience for the same capacity, or both. The 4th generation of mobile technology is about to deliver a peak rate in gigabyte range. This has not been achieved without significant advancements in the design of wireless modems which has been very detailed in some parts. In this presentation, the author will be reviewing recent advancements and critical concepts in which chip and device makers in the industry of mobile communication have taken into account in order to meet specific goals and to exhibit them successful in the market. The presentation will be presented in a form to focus on the design and technology points of view.

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