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## **Aiming at the Natural Equilibrium of Planet Earth Requires to Reinvent Computing**

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**Summary.** Maintaining the natural equilibrium of the planet earth requires increasing compute capacity also to optimize all key issues given by the impact of the growing population of human beings and their activities. Already now the carbon footprint of only the internet is higher than that of the worldwide air traffic. Under the growing oil price at declining production the rapidly growing energy consumption in all areas of computing will become unaffordable, probably within less than a decade.

Growing core counts of manycore architectures are racing ahead of programming paradigms. Most applications had originally been written for a single processor and more than 50% of the applications do not scale beyond eight processor cores. The programmer population qualified for re-writing does not yet exist.

Programming research has stalled and the parallel programming wall forces us to reshape the fundamental nature of system design, programming methods and system usage. However, the evolutionary path is not addressing the key issues. Extrapolations from current methods and practices are simply inadequate. Hetero systems including reconfigurable computing promise to reduce the energy consumption of computing by at least an order of magnitude. However, for a successful transition we have to reinvent computing.