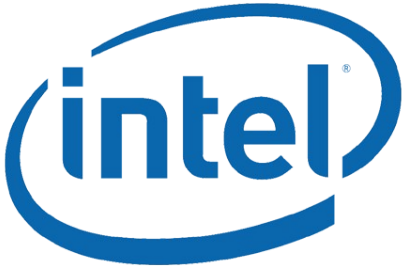


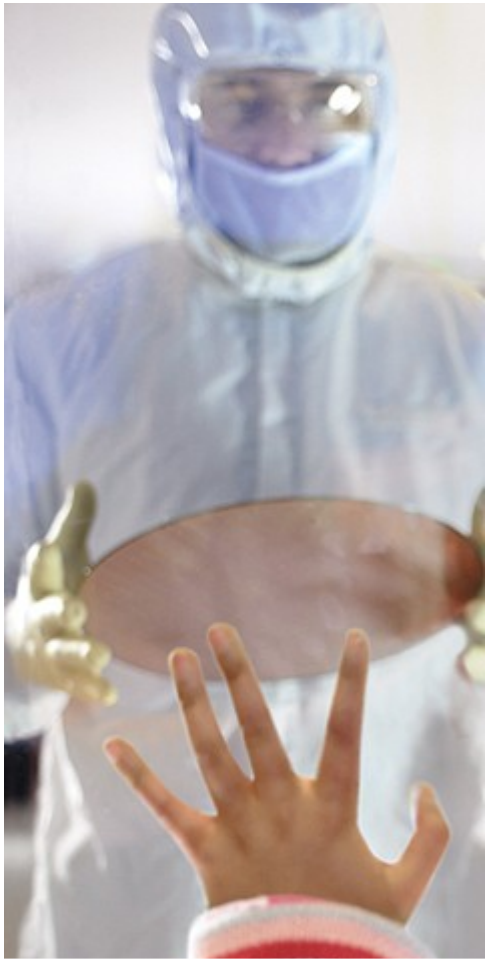
Energy and ICT – The Macro Story

Sonia Shrivastava
CSR Head South Asia

March 2009

ICT and Climate Change

Sustainable Manufacturing

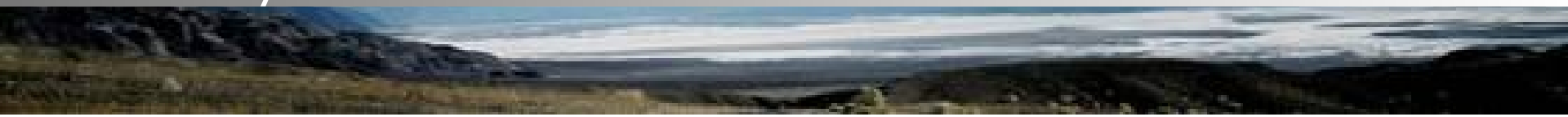


Green Of IT Micro Story

Green By IT Macro story

Sustainable Manufacturing: Environmental Responsibility

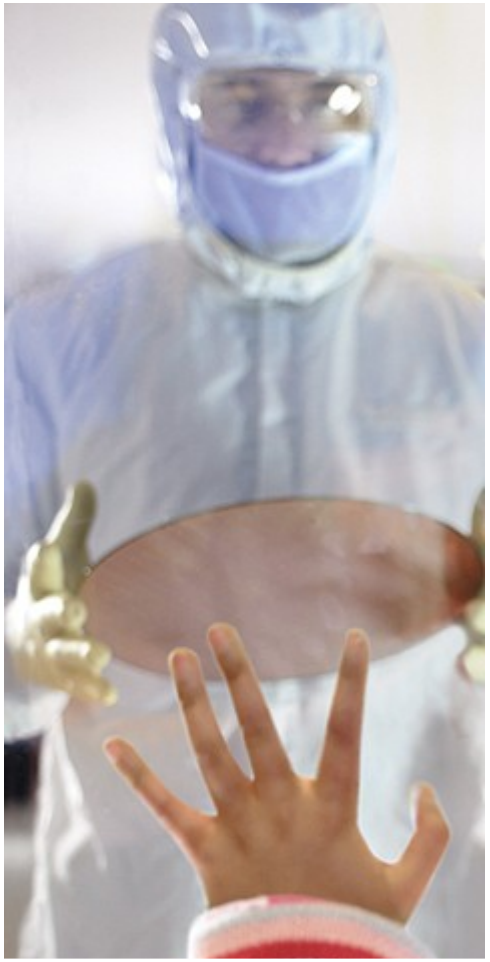
- Reduce greenhouse gas emissions per production unit 30% below 2004 baseline by 2010*
- Expand our eco-efficiency strategy by completing over 200 projects in our operations, products, and communities that benefit the environment*
- Reduced water consumption in our operations
- Remove hazardous materials from our products
- Recycle 70% of our both solid and chemical waste*



*Source: Intel 2007 Corporate Responsibility Report

ICT and Climate Change

Sustainable Manufacturing

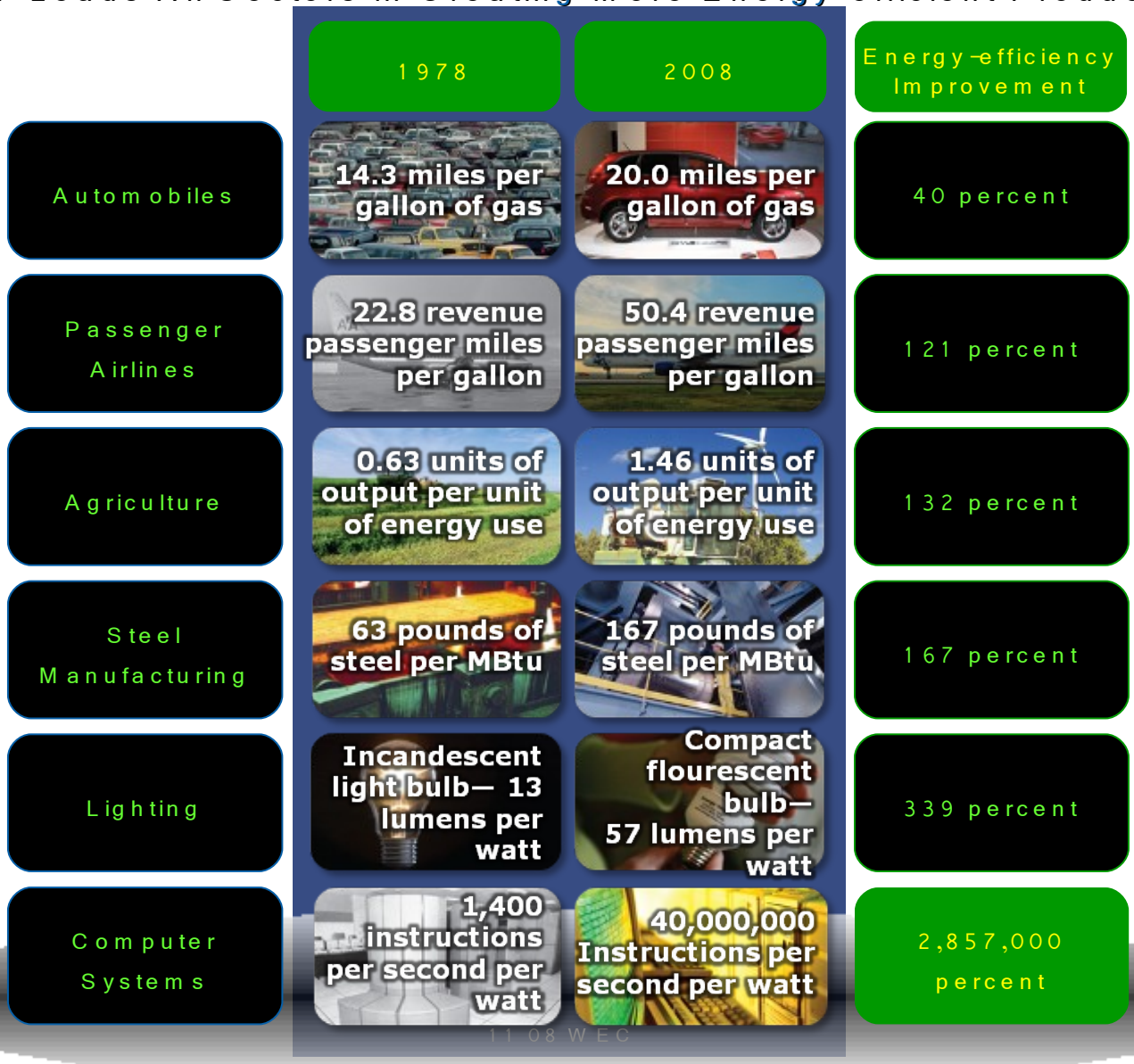


Green Of IT Micro Story

Green By IT Macro story

Increasing Energy Efficiency

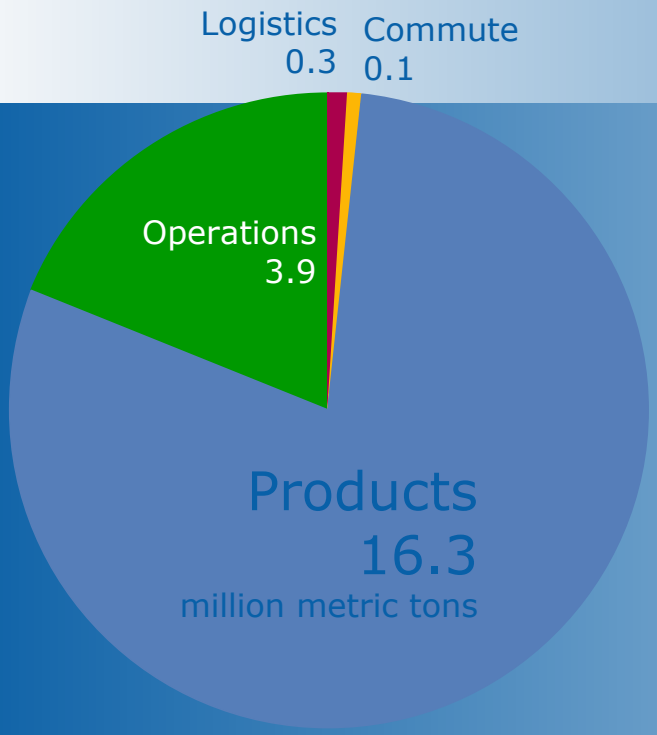
ICT Leads All Sectors in Creating More Energy-efficient Products



Source: "A Smarter Shade of Green," ACEEE Report for the Technology CEO Council, 2008.

Total Intel Carbon Dioxide Footprint for Operations Plus Products

Based on Impact of Products Shipped Each Year

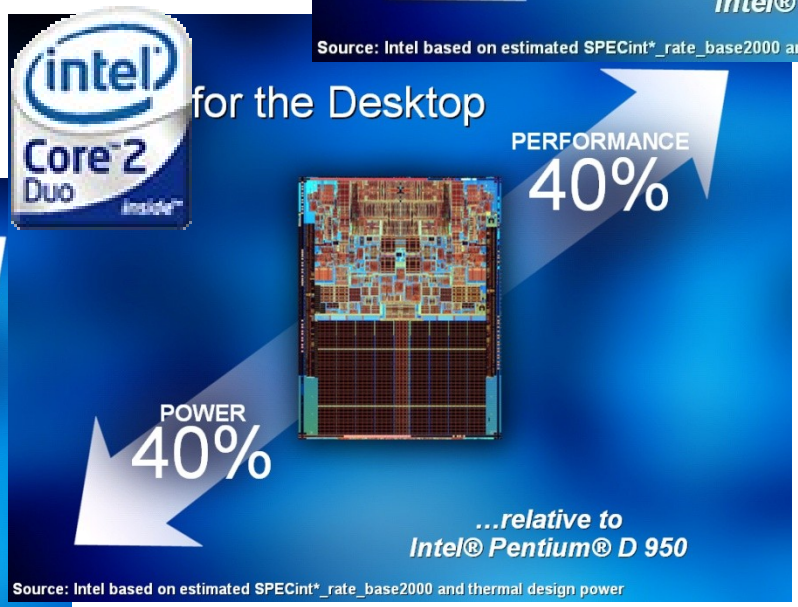


Carbon Dioxide Emissions
(in million metric tons)

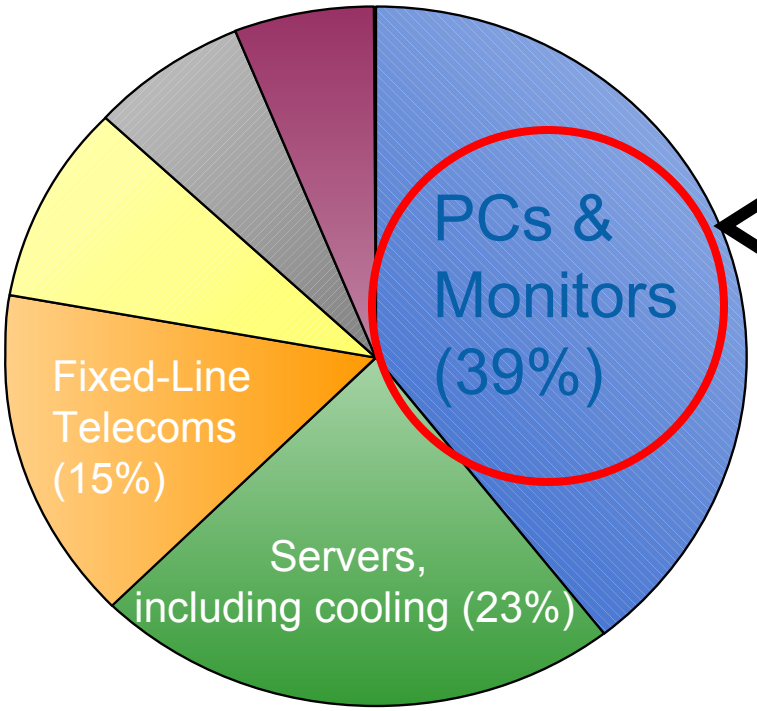
Intel's Biggest Impact Area for the Environment

Source: 2006 Internal data, combined with World Resources Institute protocol for converting to CO2 impact.
Other chemicals includes N2O, fluorinerts, refrigerants, and CO2 generated from VOCs.
Note: Supply Chain not included.

The “Micro” Story -Intel Leadership



PC Energy Consumption is Important



"Data centers receive a lot of attention because they are an obvious concentration."

"However, the real area where the greatest overall effect can be made is at the desktop and with client devices."[1]

- Source Gartner Inc. "Tera-Architectures A Convergence of New Technologies" by Martin Reynolds July 26, 2007

The Climate Savers Computing Initiative

Improve computing energy efficiency by 50%

- Collectively save $5.5 billion in energy costs ($550 million in India)

Reduce global CO_2 emissions by 54 million tons per year (4.2m tons in India)

- That is the equivalent of…

removal of 11 million automobiles

elimination of 20 coal plants from the planet

planting 25,000m^2 (~65,000km^2) of trees

Climate Savers Computing Initiative

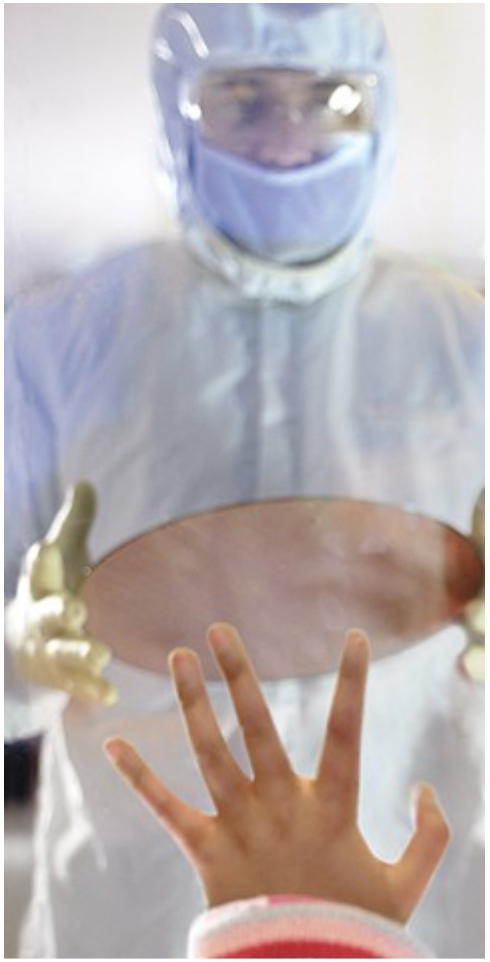
The Initiative is comprised of consumers, businesses and NGOs that have come together to drive energy efficiency by

- Increasing the energy efficiency of new PCs and servers
- Promoting the use of power management

1 Based on IDC projections of desktop and server units shipped, a baseline of typical desktop and server power consumption in the first half of 2007, and an average cost of $0.0885/KW

ICT and Climate Change

Sustainable Manufacturing



Green Of IT Micro Story

Green By IT Macro story

Leverage Computing to Drive Energy Savings

Automation

Smart Motors

Logistics for Transportation

Smart Buildings

Smart Grids

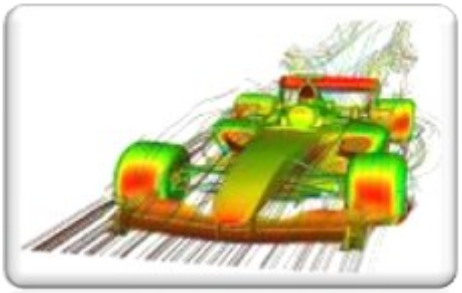
Substitution

Video Conferencing

On-line Entertainment

E-commerce

De-materialization



Converting Atoms to Bits

On-line Banking

Digital Music

"Macro Story" Evidence

- American Council for an Energy-Efficient Economy (ACEEE) studied this issue and concluded:
  - "For every extra Kwh of electricity that has been demanded by ICT, the US economy increased its overall energy savings by a factor of about 10…" (2008)

- The Climate Group and the "Global e-Sustainability Initiative" published a report entitled, "Smart 2020: Enabling the Low Carbon Economy in the Information Age" (2008), concluding:
  - Smart 2020 concludes that ICT strategies could reduce up to 15% percent of global emissions in 2020 against a "business as usual" baseline which is 5 times the sectors own emissions

- 2008 WWF report, "IT Strategy for CO2 Reductions" concludes:
  - "The direct emission reductions of one billion tonnes of CO2 which could be achieved…is equivalent to approximately a quarter of EU's current CO2 emissions and, thus, very significant."

Digital Energy Solutions Consortium

- Bringing "Macro" story alive – using ICT to reduce carbon emissions
- Industry wide initiative of ICT companies and NGOs – HP, TI, Dell , Intel, WWF, The Climate Group…
- Policy/regulatory changes
- Aligned to NAPCC – ICT contributing to the 8 missions

Summary

- ICT response to Climate Change – Green of IT and Green by IT
- Climate Change is a serious problem that requires concerted action.
- Work with us to drive computing efficiency
  - Join the Climate Savers Computing Initiative
    - Deploy power management!
- Join hands with Digital Energy Solutions Consortium