Discussion Group
Mission Critical Systems

Influence of Component Reliability on Design Decisions w.r.t. Performance & Robustness

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Discussion Group Focus:

Innovative electronic systems are based on options to combine a variety of complex functional blocks under high speed interoperable conditions with each other. Only speed increase and cost per die decrease has opened the gate to achieve the required fast feedback loop to input parameters from human to machine and machine to machine interfaces.

Since high speed communication blocks will somehow be integrated in any IC that performs functions such as signal transformation, amplification, filtering, taking decisions and driving foreseen effects, communication standards and their performance requirements are therefore driving and also will drive technology changes of interdependent connected and integrated functional blocks.

As a consequence, ‘More than Moore’ technologies have emerged in order to cope with cost and incompatibility issues of available integrated functions.

This discussion group is open and welcomes anybody who wants to share and gain information on “More than ‘More than Moore’” which we consider a discipline of key importance for automotive, military/aerospace and other industrial sectors.

While ‘More than Moore’ looks beyond IC shrinking – considering new and enhanced assembly technologies and chip package interaction, “More than ‘More than Moore’” looks on chip-package-PCB-carrier- … interaction based on assumed or evaluated mission profile collectives per business sector. In general, this is a challenging approach because it involves cooperation and joint development programs along the supply chain.

Questions would be: “Is my ‘More than Moore’ IC capable to work in a foreseen application (system) ? How do I qualify it ? Is my guess about applications correct in order to assess the IC as robust ? Can I address a robustness margin ?

Sub-topics could be: harsh environments, “always online”, EMC, system design – standard. reporting of intrinsic failure rates, usage beyond specification – noticed and unnoticed, chip package interaction – changed requirements and responsibilities along the supply chain, PCN, PTN – product compatibility, SER, HT, HV, energy efficiency, long term storage, package lifetime & green materials etc.