Microelectronics User Group Meeting

TWEPP 2021

October 5th, 2021

MUG meeting Agenda

- "Welcome"
  by Kostas Kloukinas, CERN *(15')*
- "EUROPRACTICE IC service offerings and foundry news" *(30')*
  by Paul Malisse, IMEC
- "CERN ASIC Support News - EP R&D WP5 IC Technologies developments"
  by Alessandro Caratelli, CERN *(30')*
- Common SOC design platform and enablers
  by Risto Pejasinovic, CERN *(30')*
- "CHIPS: **C**ERN-**H**EP **I**C design **P**latform and **S**ervices"
  by Federico Faccio, CERN *(10')*
- "EUROPRACTICE EDA tools for the HEP community"
  by Mark Willoughby, RAL STFC, UK *(30')*
- "ChipFlow - Commercial Open Source EDA"
  by Rob Taylor , CEO at Chipflow *(30')*
- "Open Discussion" *(20')*

MUG meeting on Zoom

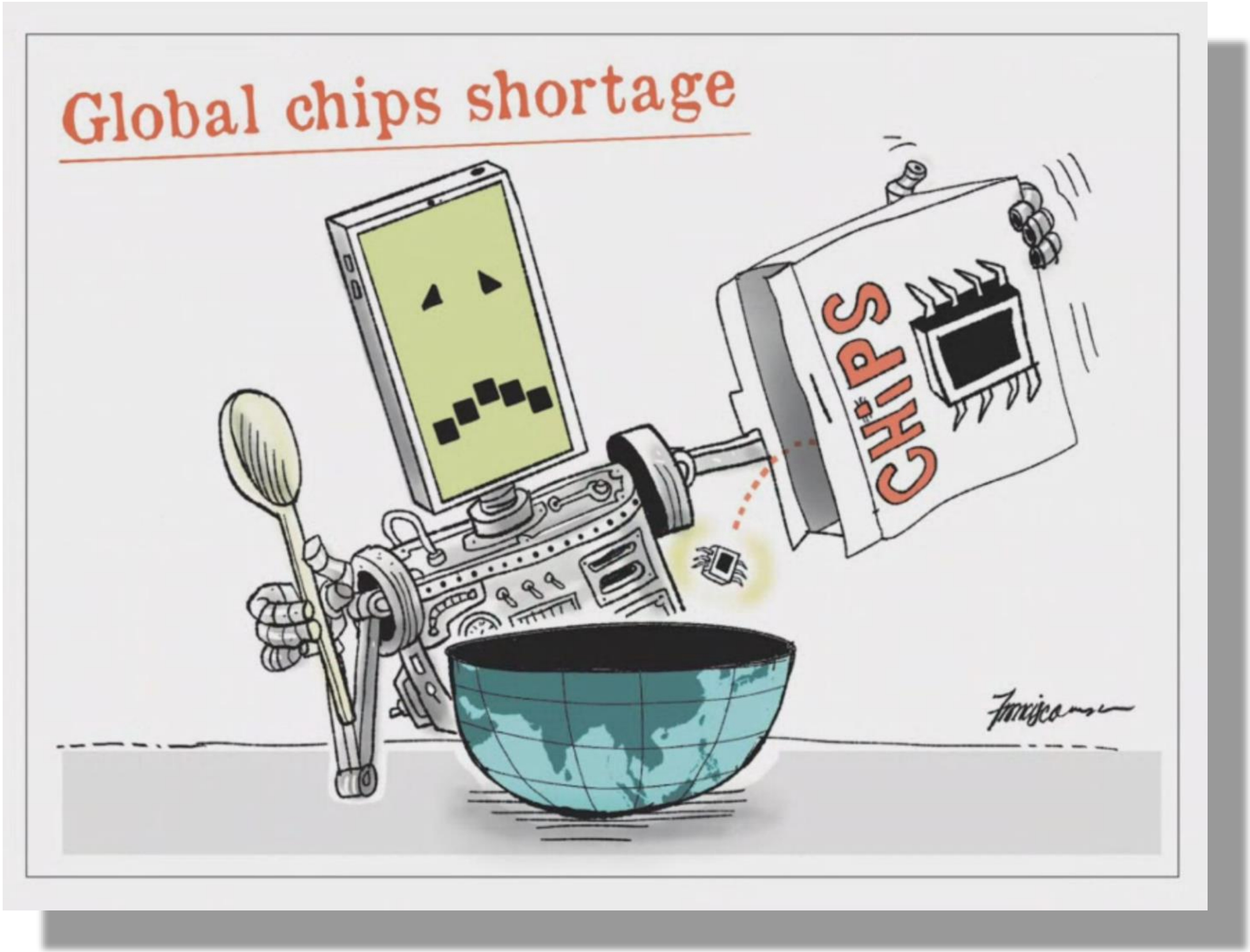
- Keep in “Mute”
  if you are not speaking

- Comments & Questions at the end of the presentations

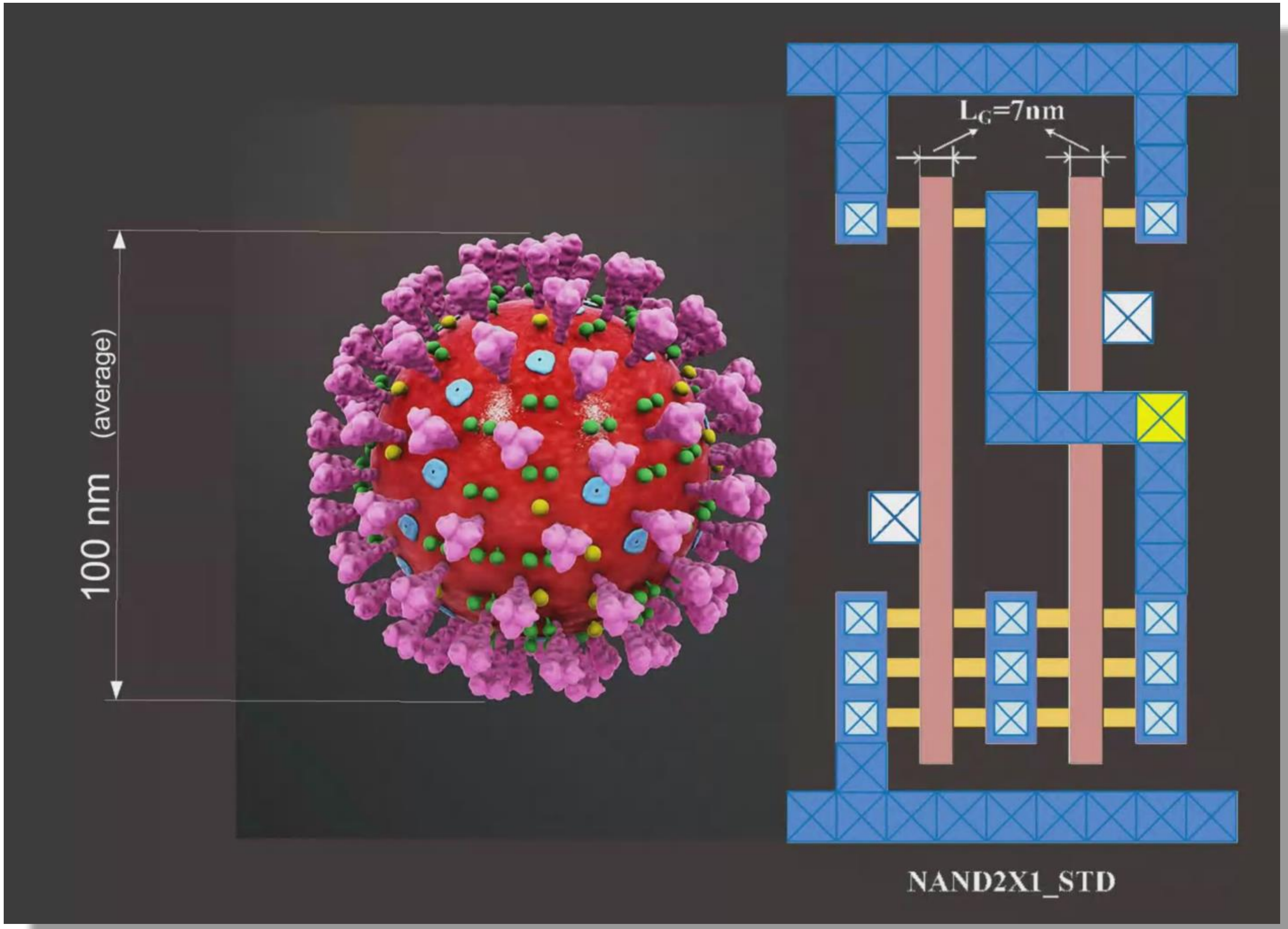
- Use “raise hand” to speak

Thank You

Global chips shortage



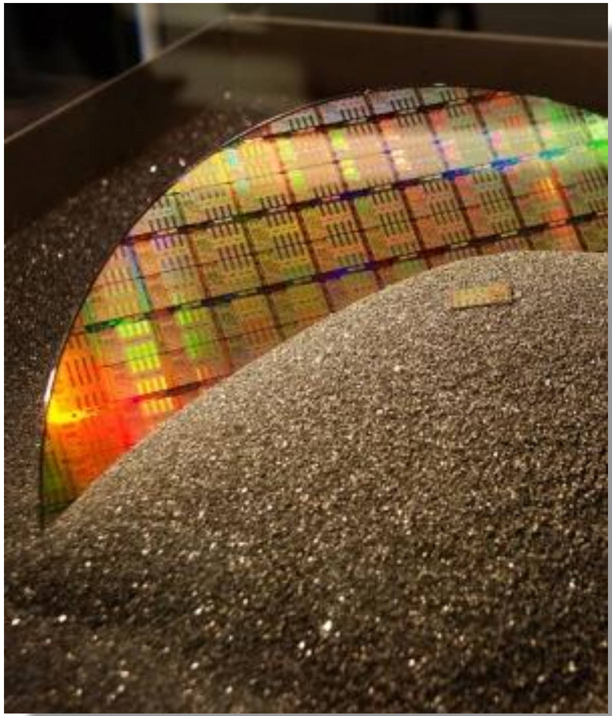
Covid-19 and semiconductors



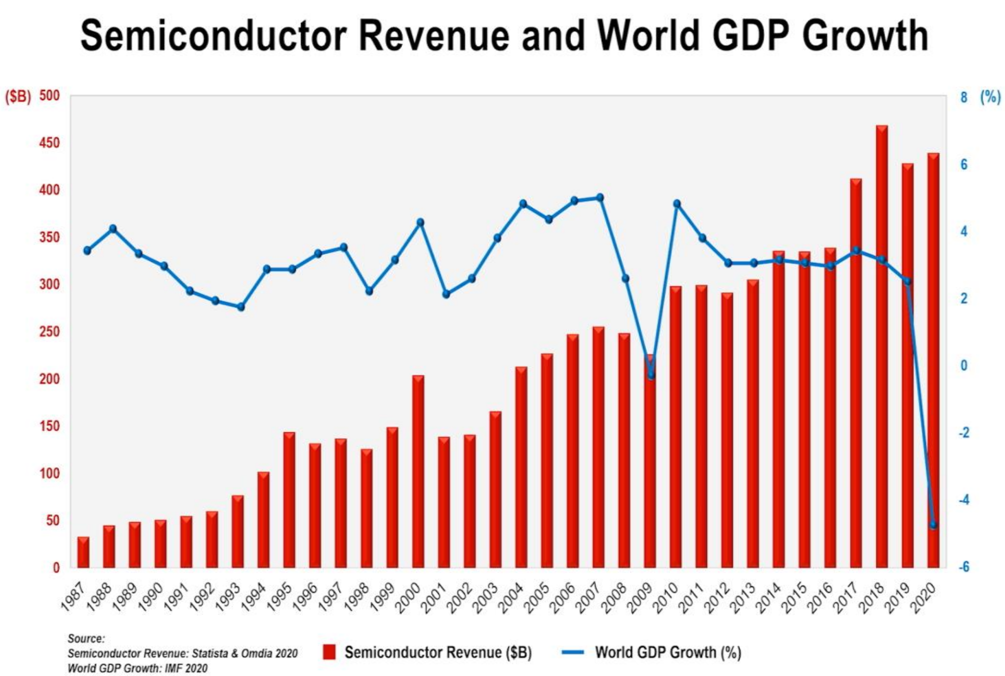
8th international workshop AMICSA 2021

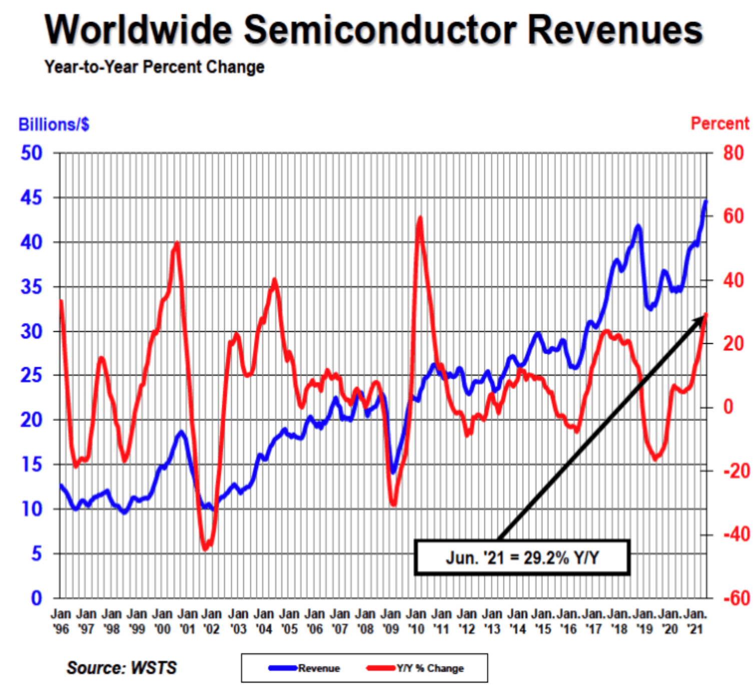
Wafer Capacity Shortage

- Factors preexisted the pandemic
  - Fragile semiconductor supply
  - Geopolitical tensions
  - Rapid growth of 5G and IoT
- Covid-19 related factors
  - Consumer end-product demand
  - Automotive industry demand rebounded
  - Perturbations in supply chains
- All foundries affected
  - Production capacity shortage
  - Suspend & prioritize products
  - Increasing prices (10%-20%...)



Semiconductor industry "performance"





- Semiconductor industry is fairing well despite financial and pandemic crisis but follows <u>cyclic patterns</u>
- Experts: "*It is expected that the <u>current cycle will be longer and stronger</u>*"
- Capacity shortage will persist in 2022 and should get better in 2023

Chip crisis and HEP community

- 2022-23 are "production years" for HL-LHC ASICs
  - Production volume of ~ 3,000 wafers
  - A "drop in the ocean" for the business world
    but indispensable, "high-volume", production for the scientific world

- Primary mitigation "tool":
  - Careful planning to maximize the use of the available capacity

*Take home message

- CERN and Europractice (IMEC) work closely to mitigate the impact of the "chip crisis" in a volatile environment
  - Successfully addressed production needs and MLM discontinuation in 2021
  - Maintain rolling updates of forecasted foundry service needs until 2023

- Europractice (IMEC) is a reliable, longstanding foundry service provider