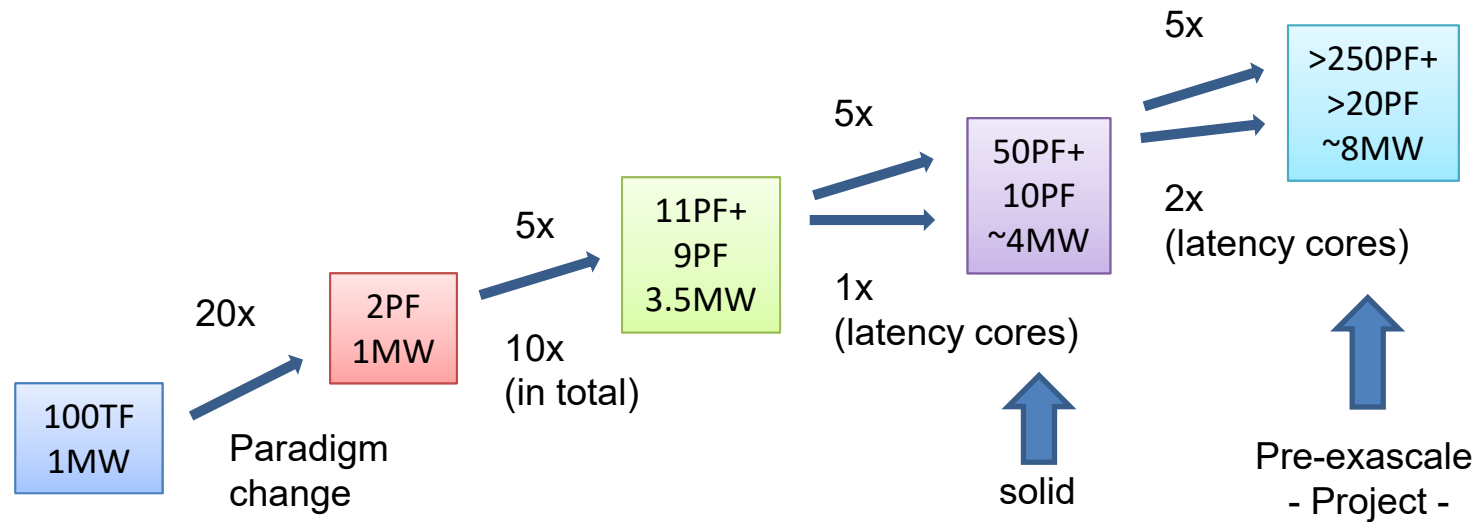


# Cineca Roadmap

## September 2017 update

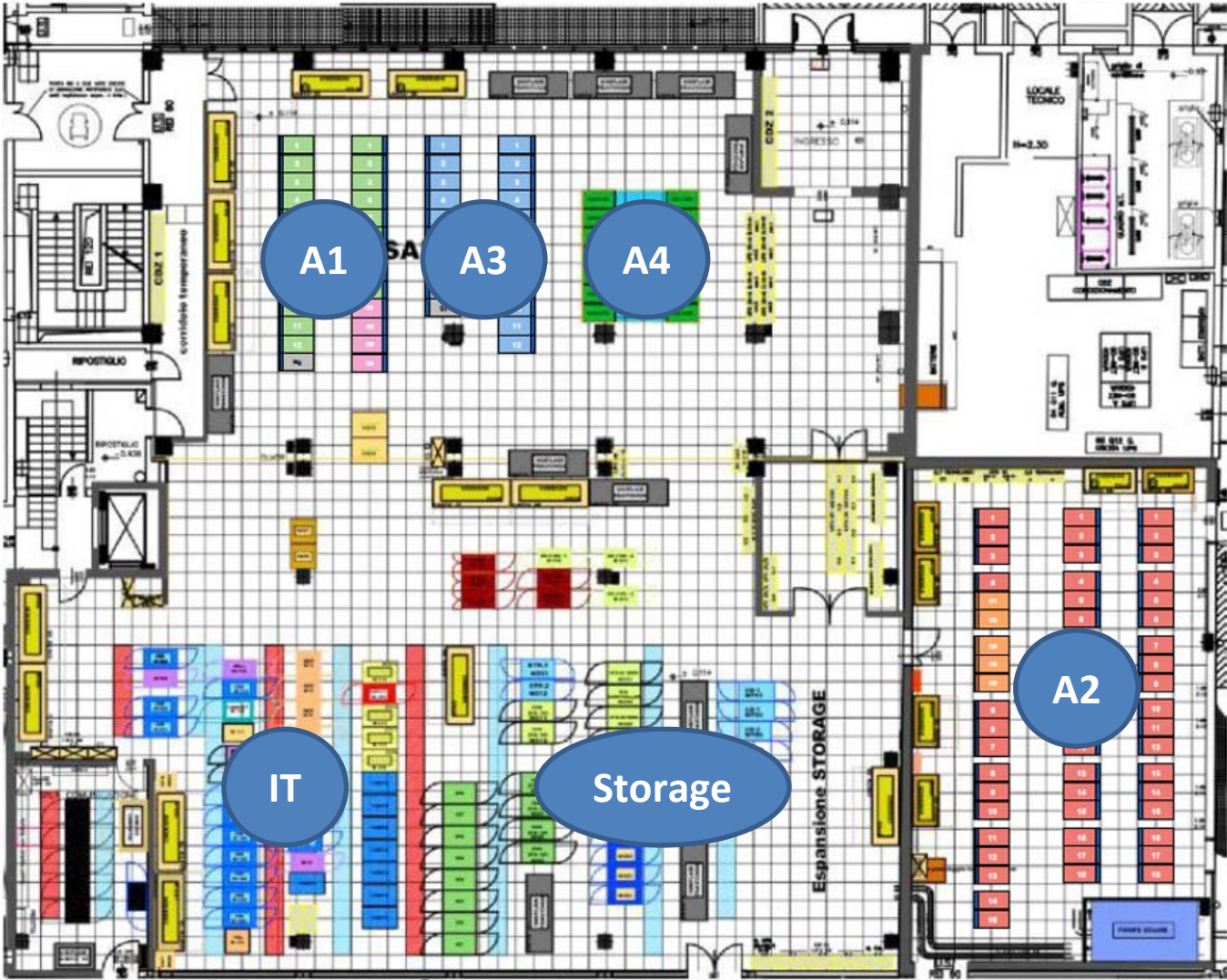


# Cineca “sustainable” Roadmap



2009	2012/2013	2016/2017	2019/2020	2021/2022
IBM SP6 Power6	Fermi IBM BGQ PowerA2	Marconi Lenovo Xeon+KNL	To be defined Scalar + Vector or Acc.	To be defined Scalar + Vector or Acc.

# Data center @ Casalecchio



## Assured funds

### Legend

- ISCRA – Italian SuperComputing Resources Allocation;
- PRACE – Partnership for Advanced Computing in Europe;
- EuroFusion – European Consortium for the Development of Fusion Energy;
- SISSA – International School for Advanced Studies;
- INFN – National Institute for Nuclear Physics;
- PPIHB – Interactive Computing E-Infrastructure for the Human Brain Project;
- PPI4HPC – Procurement per Innovation for HPC;

### Source of funds

MIUR  
MIUR + EU  
EU  
SISSA + ICTP  
INFN  
UE  
UE

### New projects and new possible funds.

- PPI or PCP Pre-Exascale; EuroHPC; IPCEI

MIUR + UE + MISE

## Founding allocation schema for the solid next step

- 4Q2014: Cineca BoD allocated 50M Euro for the evolution of HPC infrastructure; 2 phases: "FASE A" replacement of FERMI; "FASE B" follow-up;
- 3Q2015: Cineca won the Eurofusion Tender; the budget for FASE A was consolidated in 26M Euro out of 50M Euro; Residual Budget 24M Euro.
- FASE A – MARCONI Installations milestones. Aggregated peak performance > 20 PF
  - 3Q2016: A1 Intel Xeon Broadwell
  - 3Q2016: A2 Intel Night landing
  - 3Q2017: A3 Intel Xeon Skylake
  - 4Q2017 / 1Q2018 A4 Intel Xeon Skylake
- 2H2019: Replacement of MARCONI A1 + A2. Consolidation of MARCONI A3 + A4.
- Funds: PPIHB 10M Euro (5M Euro from Cineca residual budget; 5M Euro from EU)
- Funds: Eurofusion 2 period of Agreement (10-12M Euro)
  - B1 (PPIHB) + A3 + A4 (Eurofusion). Aggregated Peak Performance > 23 PF.
- 2H2020: Replacement of MARCONI A3 + A4. Consolidation of B1.
- Funds: PPI4HPC 23M Euro (15M Euro from Cineca residual budget; 8M Euro from UE)
  - B1 (PPIHB) + B2 (PPI4HPC). Aggregated peak performance > 50 PF.
- Total investments 33M Euro
- 20M Euro form Cineca residual Budget
- 13M Euro from UE
- 4M Euro of residual budget (logistic, energy distribution, cooling...)

	2017	2018	2019	2020	2021	2022/2023
Data center @ Casalecchio	<b>A1 : 2PF</b> 21rack, <b>0.7MW</b> INFN/ISCRA	<b>A1 : 2PF</b> 21rack, <b>0.7MW</b> INFN/ISCRA	<b>B1 : &gt;15PF</b> 25rack, <b>1.5MW</b>  HT, AI, Cloud, BigData WAN (multi DC), Viz, Interactive	<b>B1 : &gt;15PF</b> 25rack, <b>1.5MW</b>  HT, AI, Cloud, BigData WAN (multi DC), Viz, Interactive	<b>B1 : &gt;15PF</b> 25rack, <b>1.5MW</b> ISCRA/INFN/SISSA	<b>C0+ : &gt;25PF</b> 100PB 50rack, <b>2.5MW</b>  HT, AI, Cloud, BigData WAN (multi DC), Viz, Interactive  ISCRA/INFN/SISSA
	<b>A2 : 11PF</b> 50rack, <b>1MW</b> PRACE	<b>A2 : 11PF</b> 50rack, <b>1MW</b> PRACE	PRACE/ISCRA/INF N/SISSA EU co-fund PPIHB	ISCRA/INFN/SISSA		
	<b>A3 : 5PF</b> 21rack, <b>0.7MW</b> EuroFusion	<b>A3 : 5PF</b> 21rack, <b>0.7MW</b> EuroFusion	<b>A3 + A4 : 8PF</b> 35rack, <b>1.2MW</b> EuroFusion	<b>A3 + A4 : 8PF</b> 35rack, <b>1.2MW</b> EuroFusion	<b>C0 : &gt;10PF</b> 100PB 25rack, <b>1MW</b>	
	<b>A4 : 3PF</b> 14rack, <b>0.5MW</b> SISSA/INFN	<b>A4 : 3PF</b> 14rack, <b>0.5MW</b> SISSA/INFN			HT, AI, Cloud, BigData WAN (multi DC), Viz, Interactive	
Total	# of Rack: 106 MW: 2.9 - 3	# of Rack: 106 MW: 2.9 - 3	# of Rack: 60 MW: 2.7	# of Rack 60 MW: 2.5 / 2.7	# of Rack 50 MW: 2 / 2.5	# of Rack 50 MW: 2 / 2.5
New data center @ tecnopolo				<b>B2 : 30-50PF</b> 100rack, <b>2.5MW</b> PRACE EU co-fund PPI4HPC		<b>C1 : &gt;200PF</b> 200rack, <b>8MW</b> PRACE EU co-fund (Pre-Exascale)
Total Number				# of Rack: 100 MW: 2.5		# of Rack 200 MW: 8