



EPI Forum

Paris, 6–7 October, 2025



KEYNOTE

Europe of Defence: Dual-use beyond HPC

By Philippe Notton

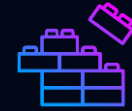
SiPearl, a startup seed funded by Europe

To provide sovereign high-performance energy-efficient processors for Europe's supercomputers, AI companies and data centres



Incorporated

In France in June 2019,
deployed in Spain, Italy



Financing

Series-A: €130m



200 employees

from **Atos** **MEDIATEK** **ST** **MARVELL**
NXP **Hewlett Packard Enterprise** **intel** **NOKIA**



Seed funded

By the European Union



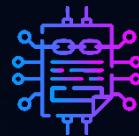
Fabless IC design house

Manufacturing entrusted to TSMC with N6P



1st design win

JUPITER, 1st European exascale
supercomputer, financed by EuroHPC &
operated by Forschungszentrum Jülich



Technological partnership

Intellectual property

arm

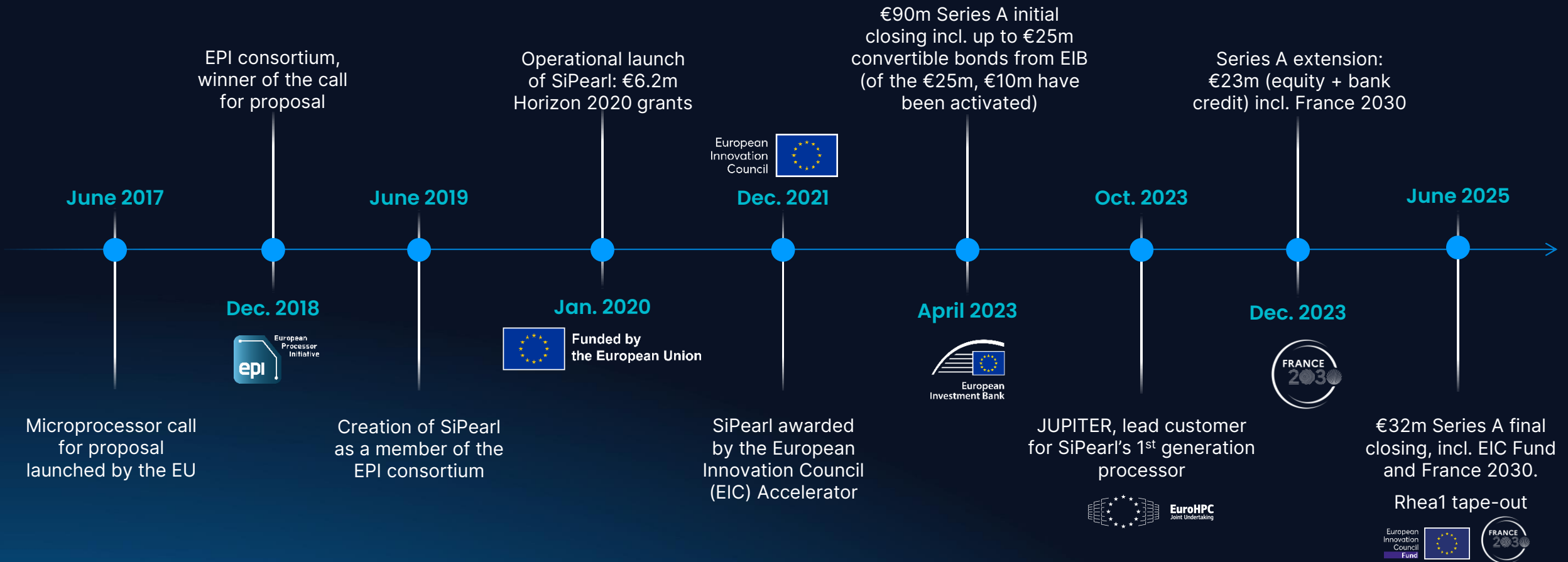


1st tape-out done

June 2025

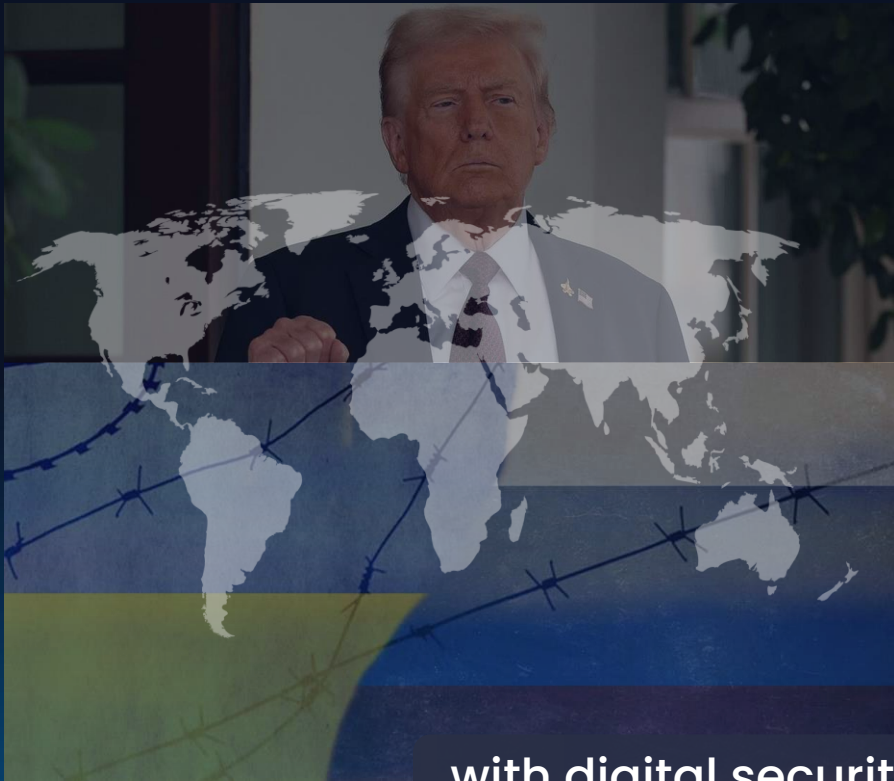
From a European Union concern to SiPearl's ramp-up

Our common goal: fostering the return of high-performance, energy-efficient processor technologies in Europe.



Europe: Sovereign hardware as a must

A complex geopolitical context



A new, highly favorable momentum

Europe of defence since the new US administration:
strategic independence is a must

- Dramatical increase of EU defence spending targets: from 2% to 5% of GDP
- Canada's deal strengthening European defence & security partnership

US rules on access to strategic European data:
Sovereign cloud and giga data centres initiatives

- Eurostack Initiative
- 1 GW data centres

US GPU's export control tightened:
a push for homegrown hardware

- Restrictions for 17 EU member states

Nvidia GPU security:
Suspensions regarding
kill switch & backdoor

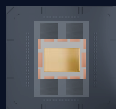
with digital security issues and armed conflicts on the rise,
ensuring Europe's defence requires sovereign digital hardware

R H E A 1

The most complex processor
ever designed in Europe

SILICON
PROCESS

6 nm
TSMC N6



LOGIC DIE IN ADVANCED SILICON PROCESS

80 arm®
Neoverse V1
cores⁽¹⁾

+61 billion
transistors

7.8 billion
equ. gates

16 metal
layers

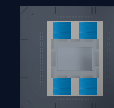
6 PCIe x16
Gen5

2 PCIe x4
Gen5

4 DDR5
interfaces

80 MB
distributed
SLC

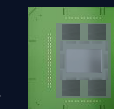
SILICON INTERPOSER



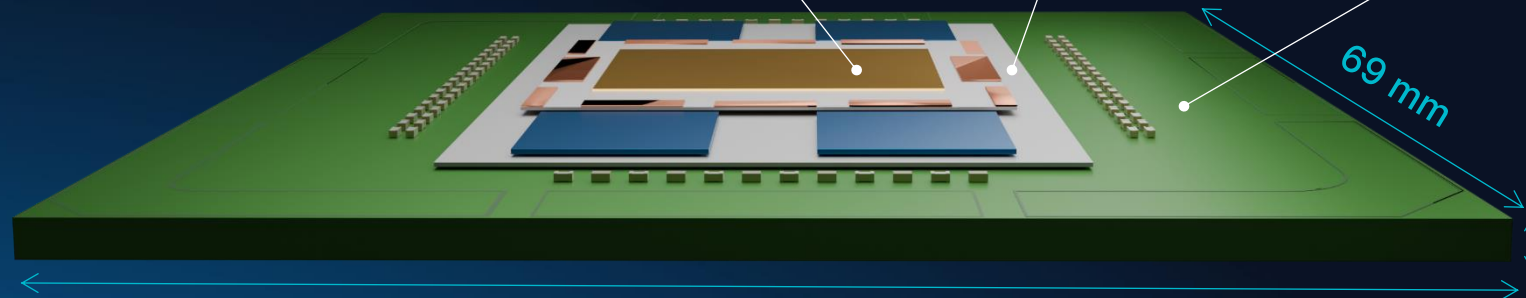
2.5D advanced
packaging

4 HBM
4x16=64GB

PACKAGE



5,430 pins



New product showcasing all the work done for Rheal

ATHENA1

Dual-use processor

European technology

Skus of 16, 32, 48, 64 or 80
Arm Neoverse V1 cores

New packaging

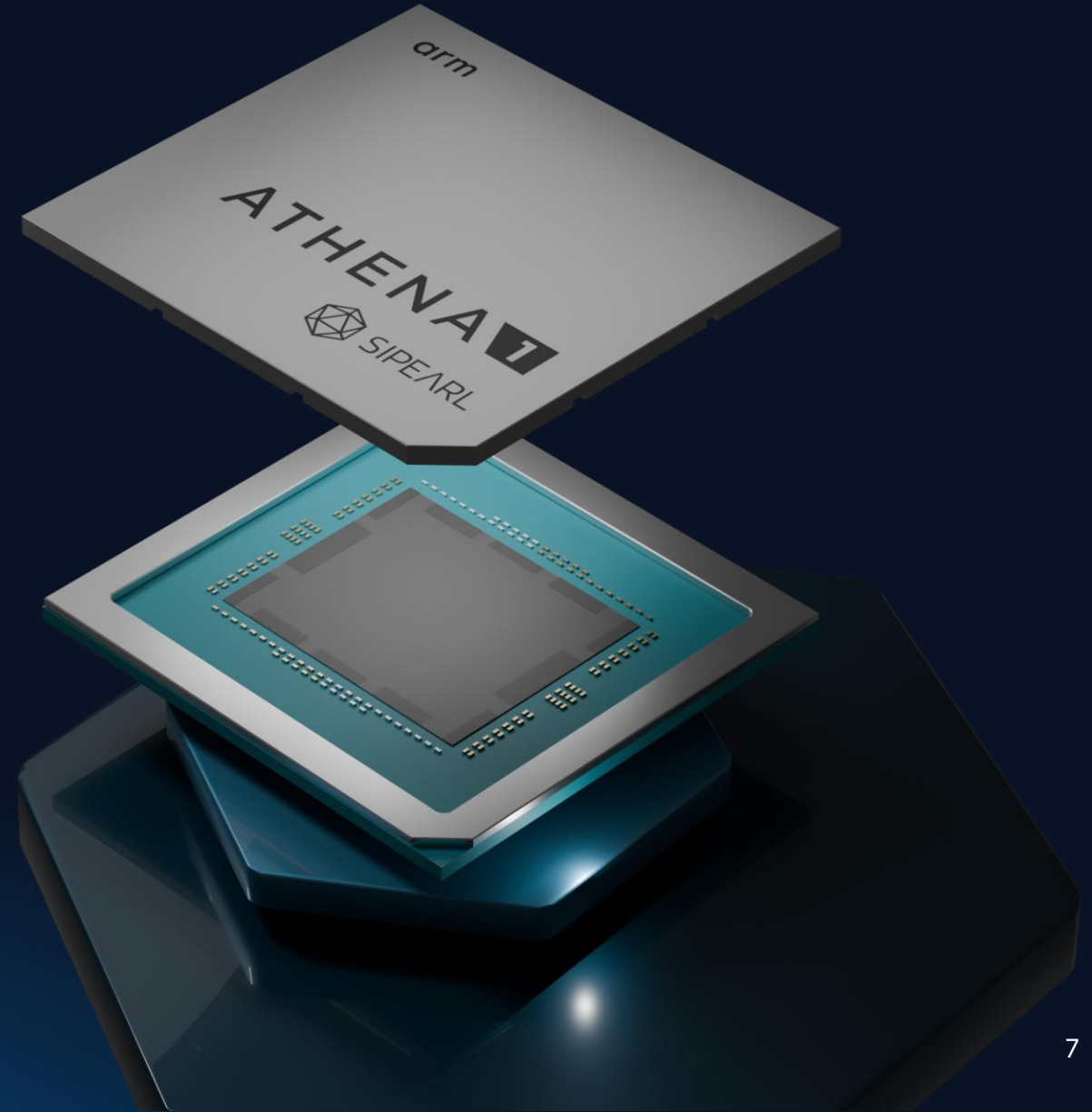
No HBM

Government

Defence

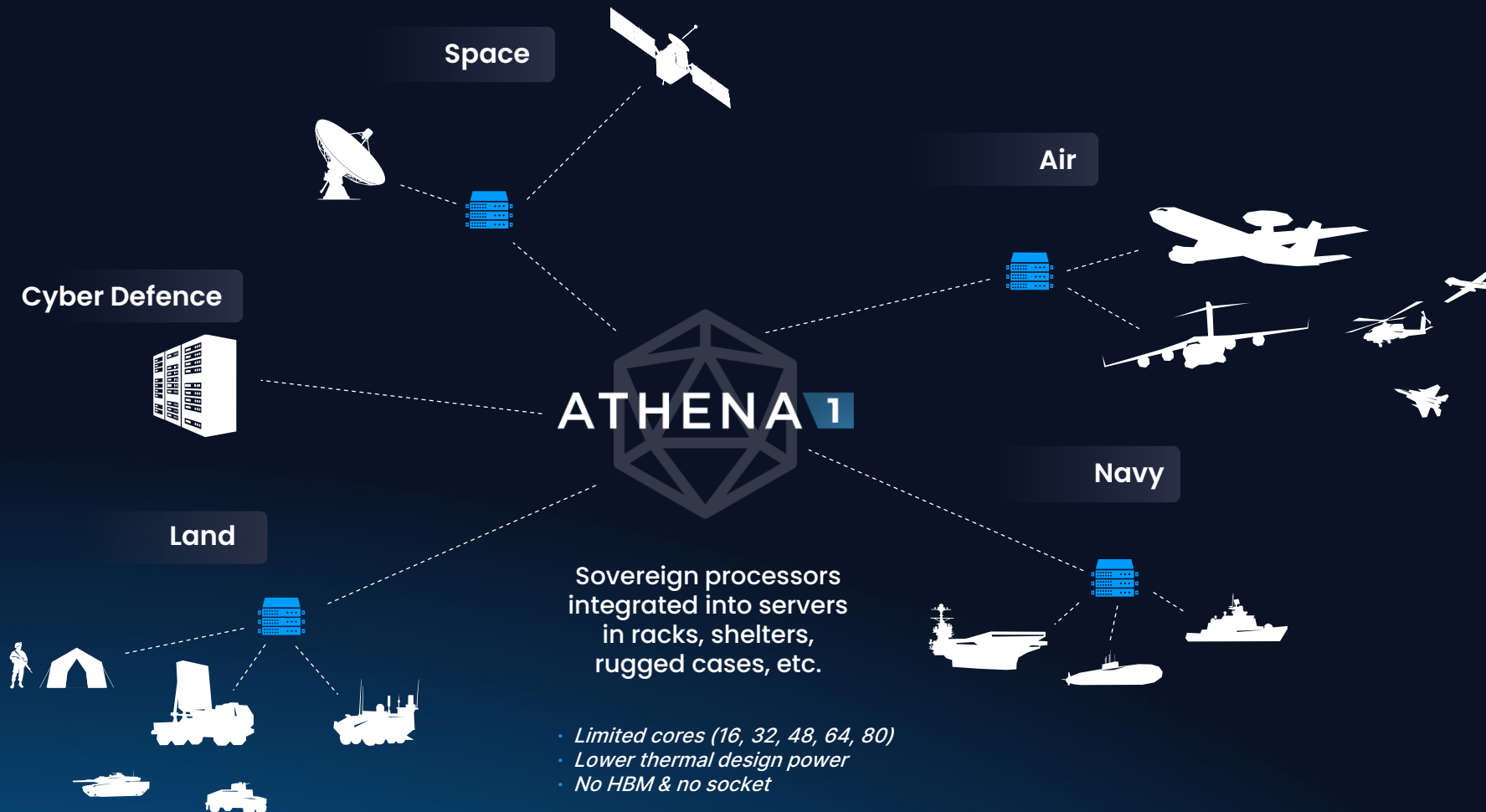
Aerospace

Commercial launch: H2 2027



Athena1: a new life for Rhea1

Our technology for HPC applied to the defence sector



Applications

Secure communications & intelligence

- Cryptography and encryption
- Intelligence processing
- Tactical networks

Electronic warfare & cyber defence

- Jamming systems
- Electronic detection & countermeasures
- Cyber defence

Simulation and training

Challenges & issues to be addressed

Security and integrity

Computing power and miniaturization

A go-to-market strategy focused on dual-use

Defence-use: Ideal customers



SiPearl is everywhere sovereign advanced compute needs to be

About... SiPearl

SiPearl is the European fabless designer of sovereign high-performance energy-efficient processors for HPC, AI and data centres. These processors will help address strategic dual-use challenges in the fields of security, defence, medical research, energy, climate and engineering with a reduced environmental footprint.

SiPearl recently completed the design of the most complex processor ever designed in Europe, Rhea1. Featuring 80 Arm Neoverse V1 cores, with 61 billion transistors, it is currently in production at TSMC in Taiwan and will be available for sampling in early 2026. Rhea1 processors will equip JUPITER, Europe's first exascale supercomputer owned by EuroHPC JU and operated by Forschungszentrum Jülich.

Incubated within the European Processor Initiative (EPI) consortium and seed-funded by the European Union, SiPearl employs 200 people in France, Spain, and Italy. Following a successful €130 million Series A, the company is launching its Series B round.



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