

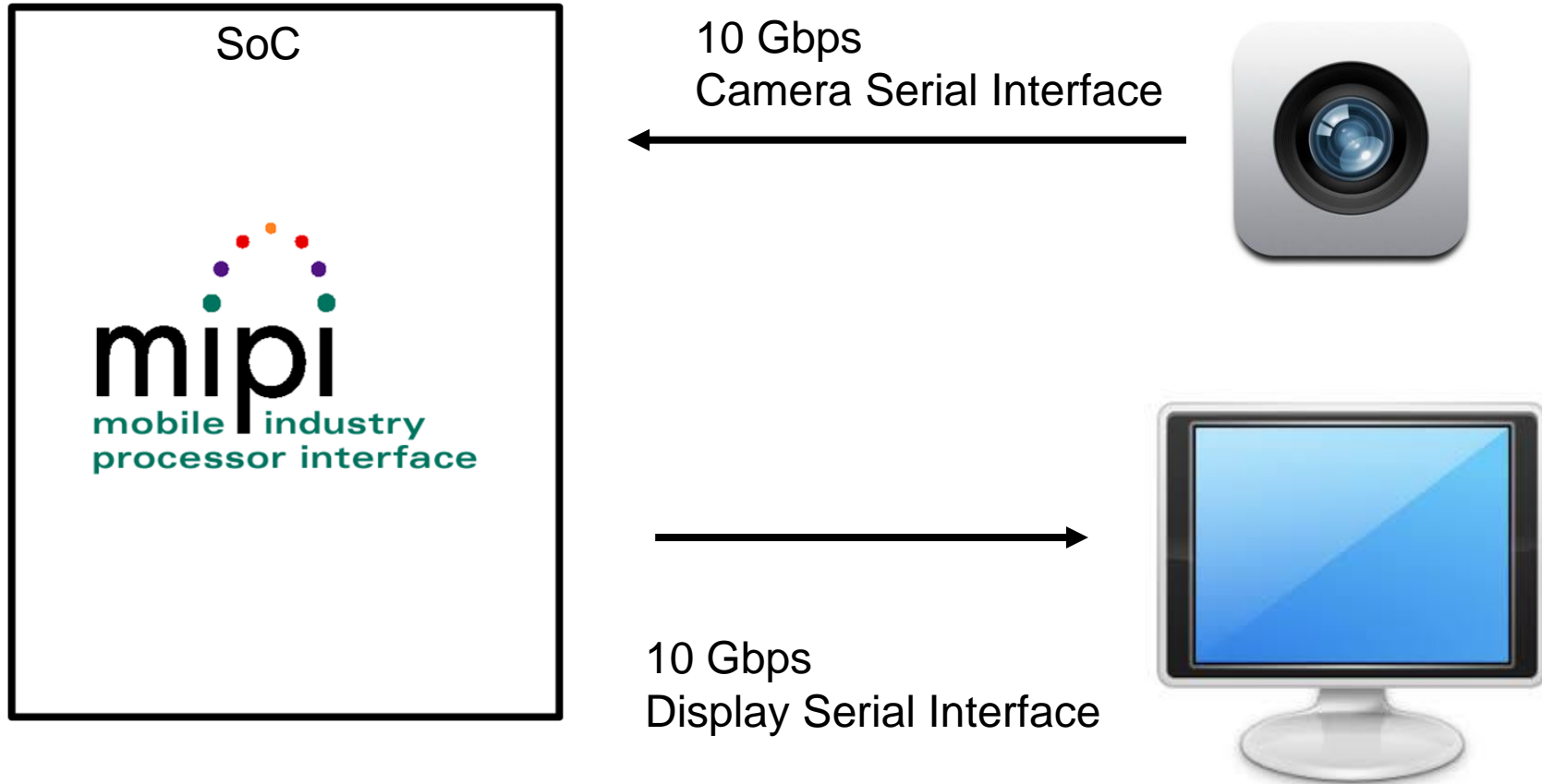
General Purpose MIPI Interface

Embedded Computing Conference 2018
5. Juni 2018

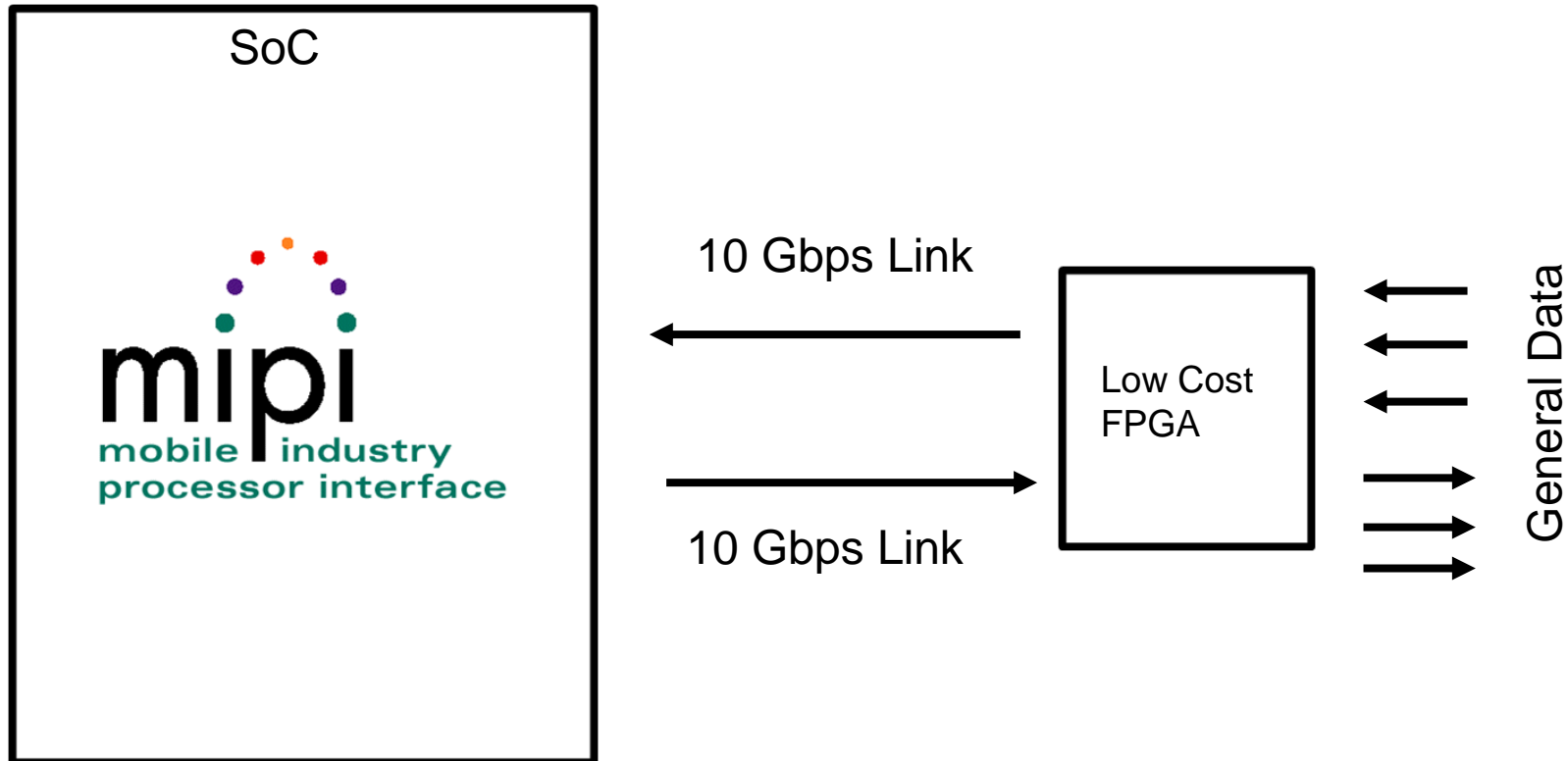
Alexey Gromov, Dr. M. Rosenthal
High Performance Embedded Platforms
ZHAW Institute of Embedded Systems (InES)

grou@zhaw.ch
<https://ines.zhaw.ch>

For what it was designed



What we want



Problem

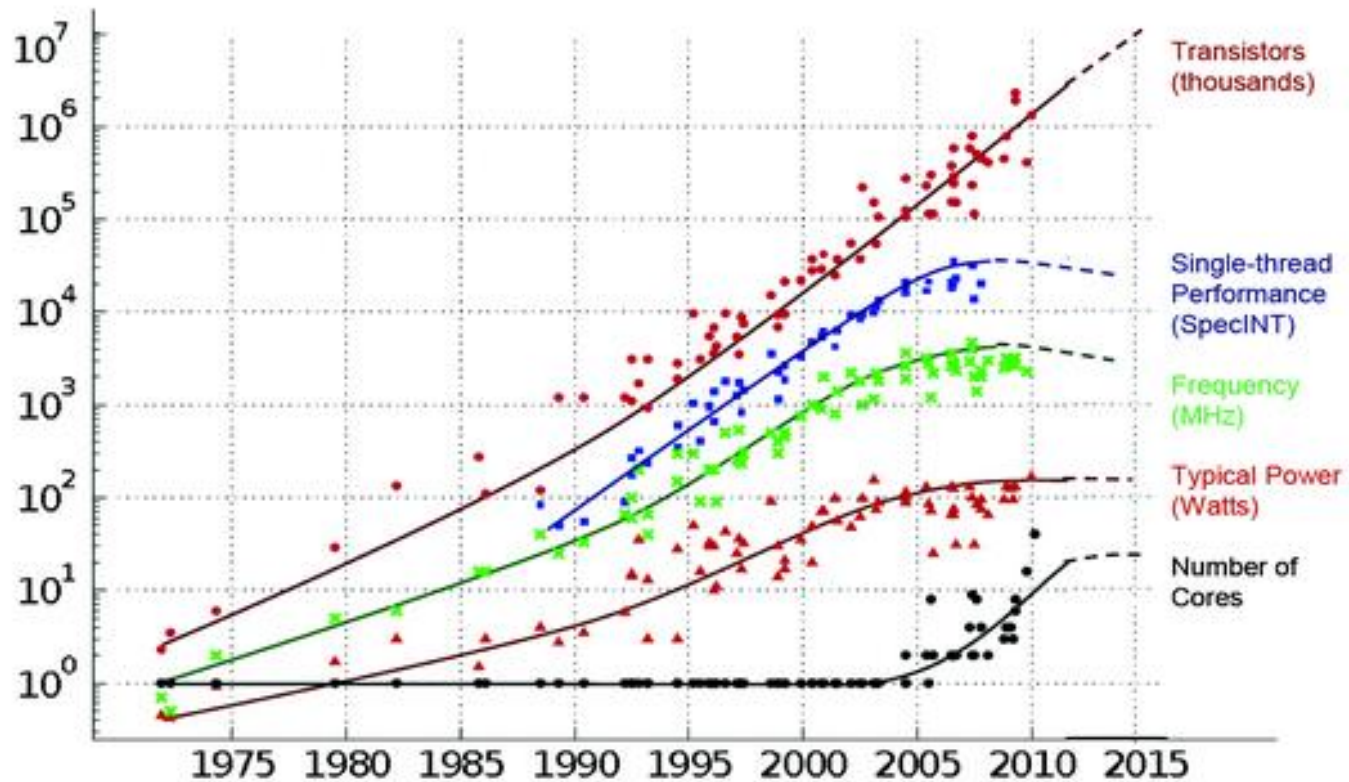


Transmission

Access

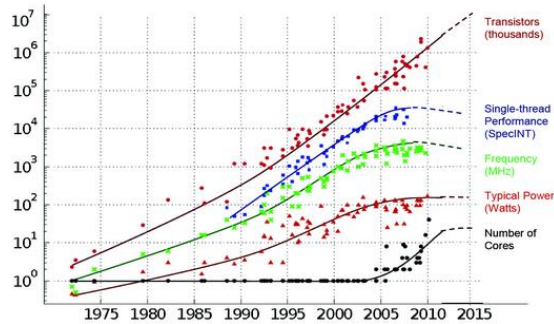
Processing

35 YEARS OF MICROPROCESSOR TREND DATA

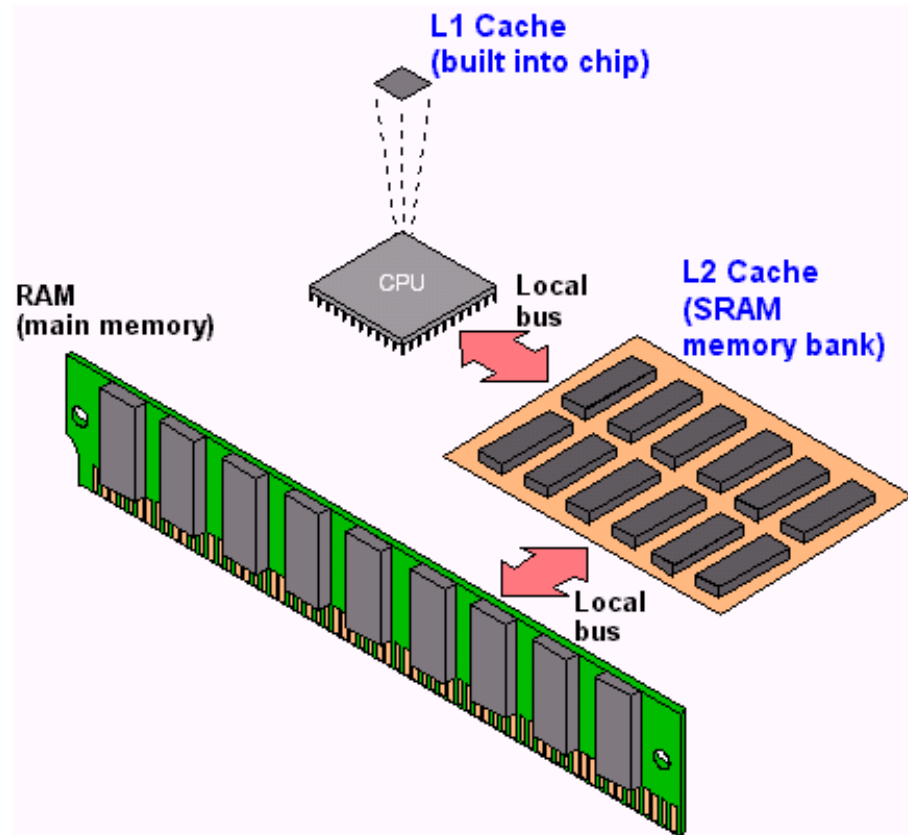


Access

35 YEARS OF MICROPROCESSOR TREND DATA

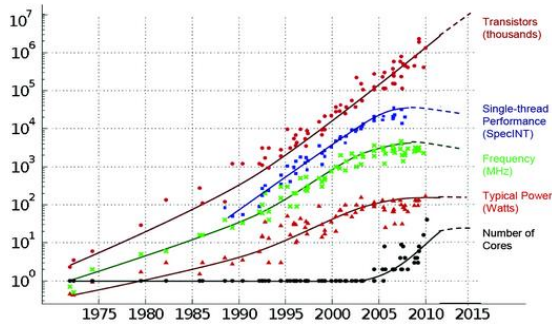


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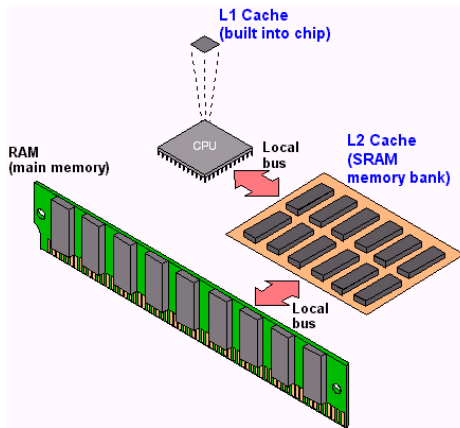


Transmission

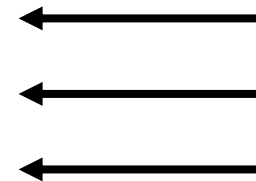
35 YEARS OF MICROPROCESSOR TREND DATA



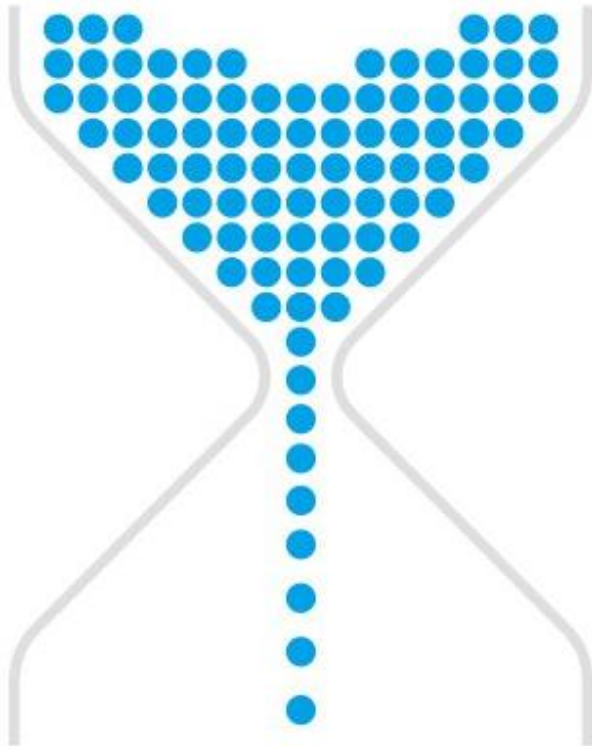
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Gigabit Streams



Transmission



Bottleneck

High Speed Links
=
High Speed Tasks

Common High Speed Links



Gen2

x1 4 Gbps
x4 16 Gbps

Gen3

x1 8 Gbps
x4 32 Gbps

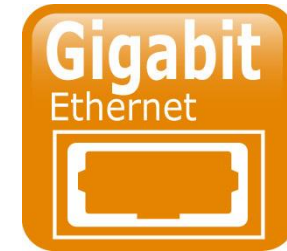


3.0

5 Gbps

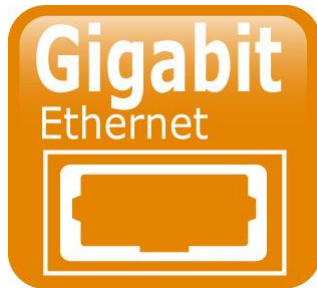
3.1

10 Gbps



1 Gbps

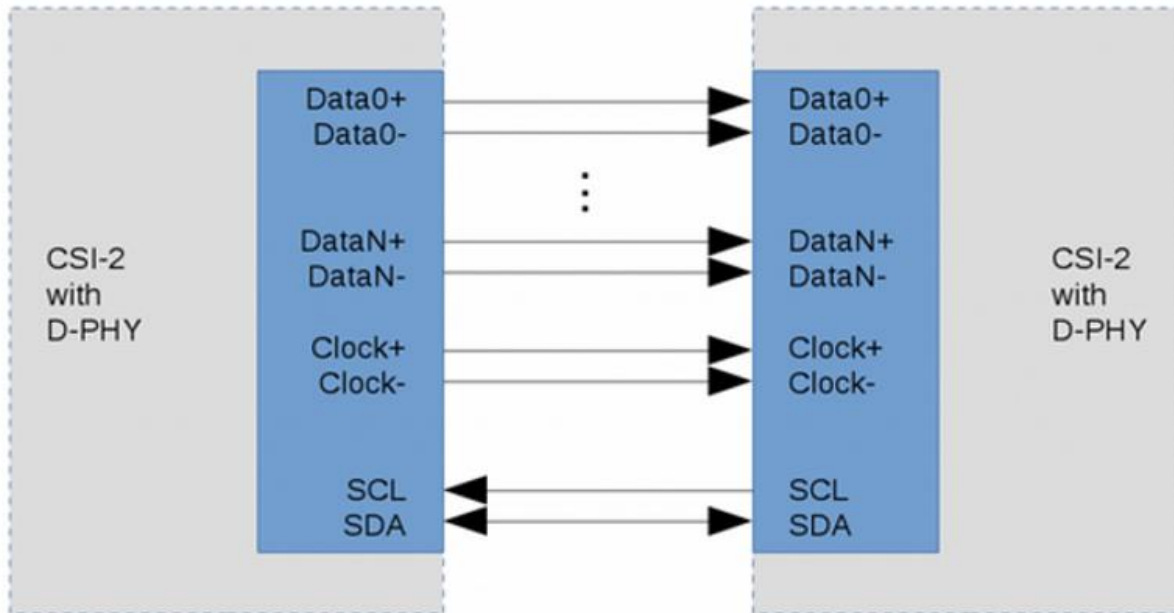
How much do you have?



Extend with



MIPI



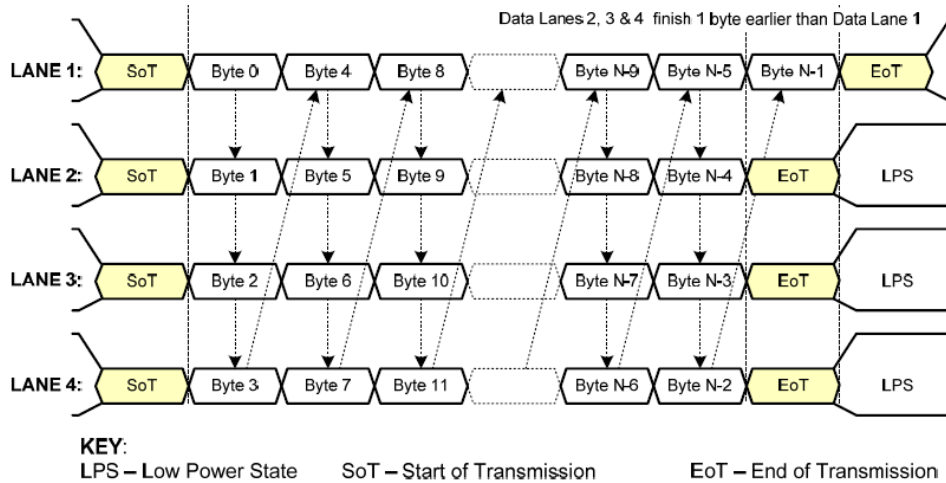
Simple

Synchronous

“Unidirectional”

IN HARDWARE

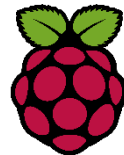
MIPI



4 x 2.5 Gbps

Cost effective

YES



290 members

Quelle: <http://electronix.ru/forum/index.php?act=attach&id=67362&type=post>

Why not MIPI – Video Protocol

CSI
Camera Serial interface



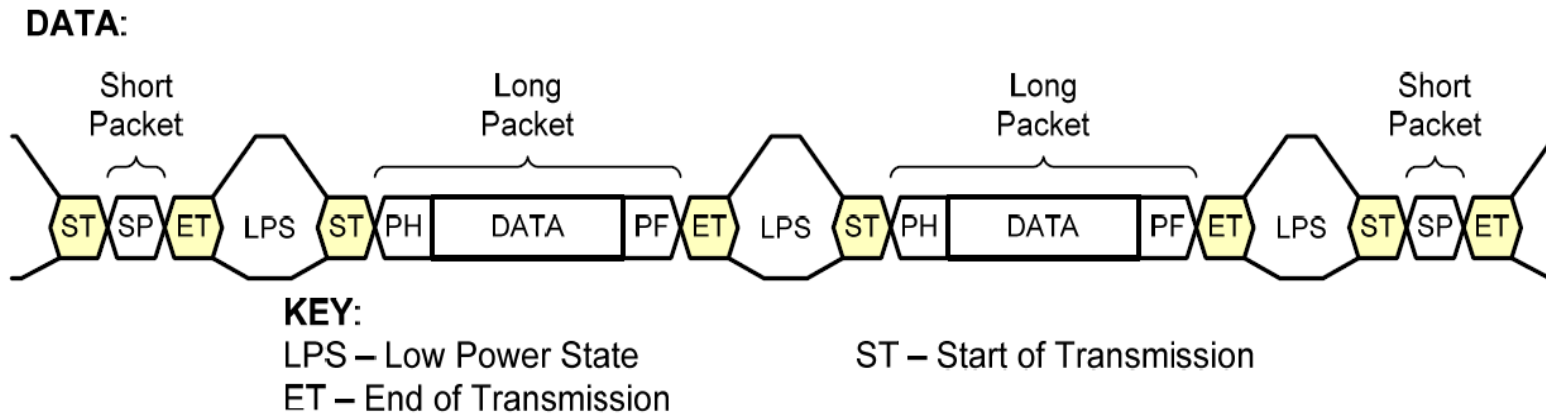
DSI
Display Serial interface



YES ?

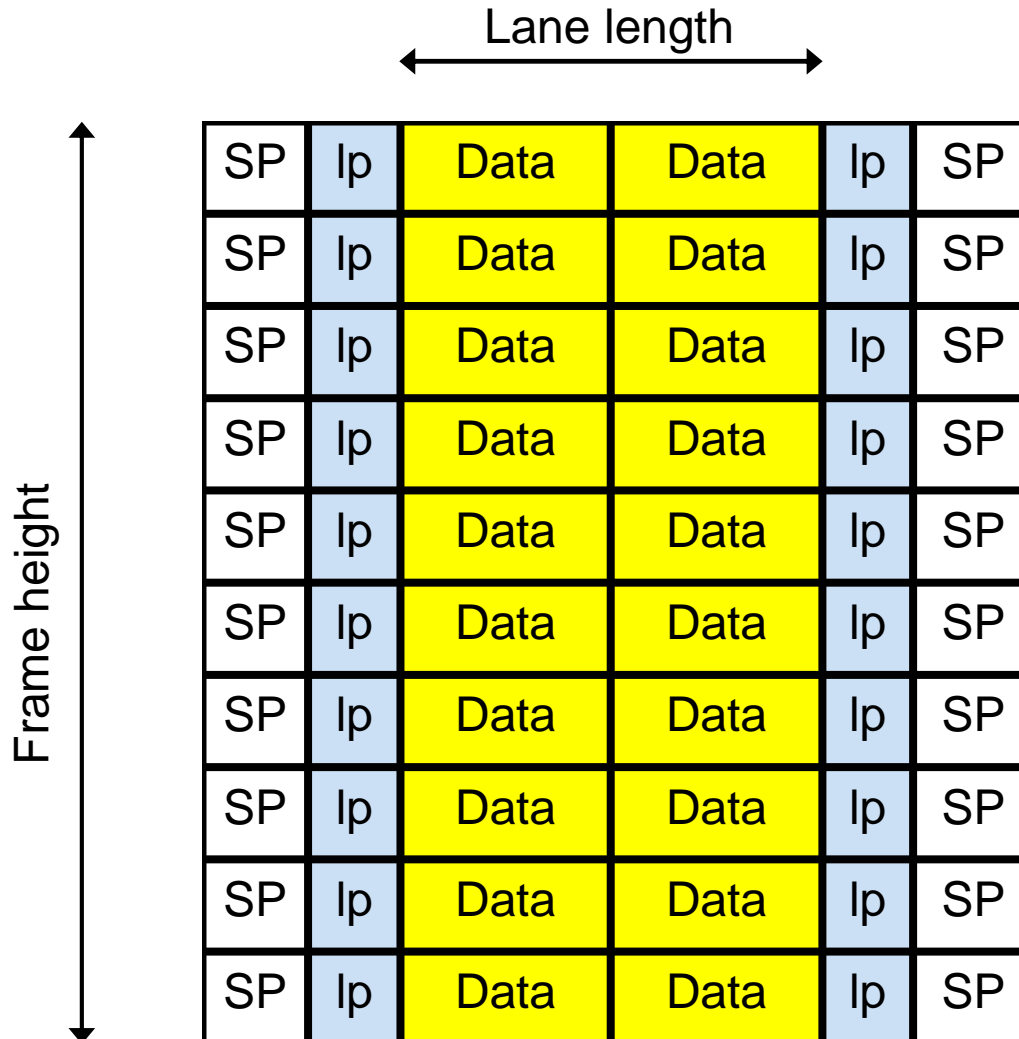
Protocol

Line / Frame based



NO ?

Frame sizes

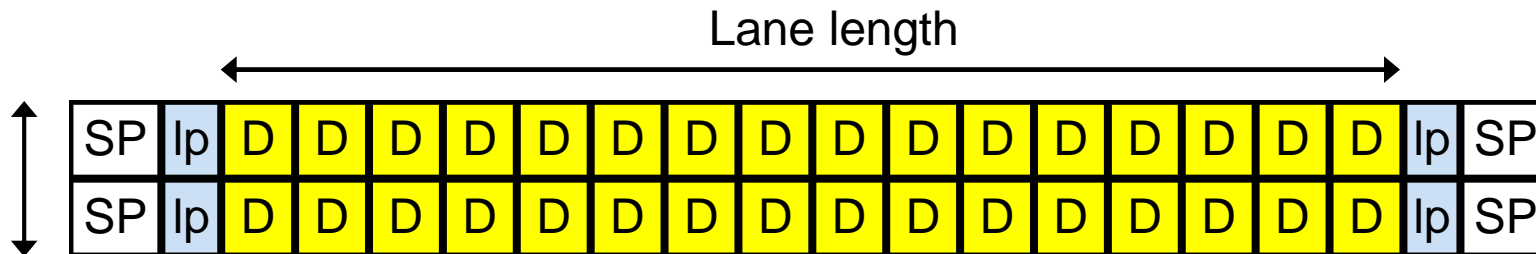


SP Short Package
lp low power
Data Data byte

Access at Frame End

NO

Frame sizes



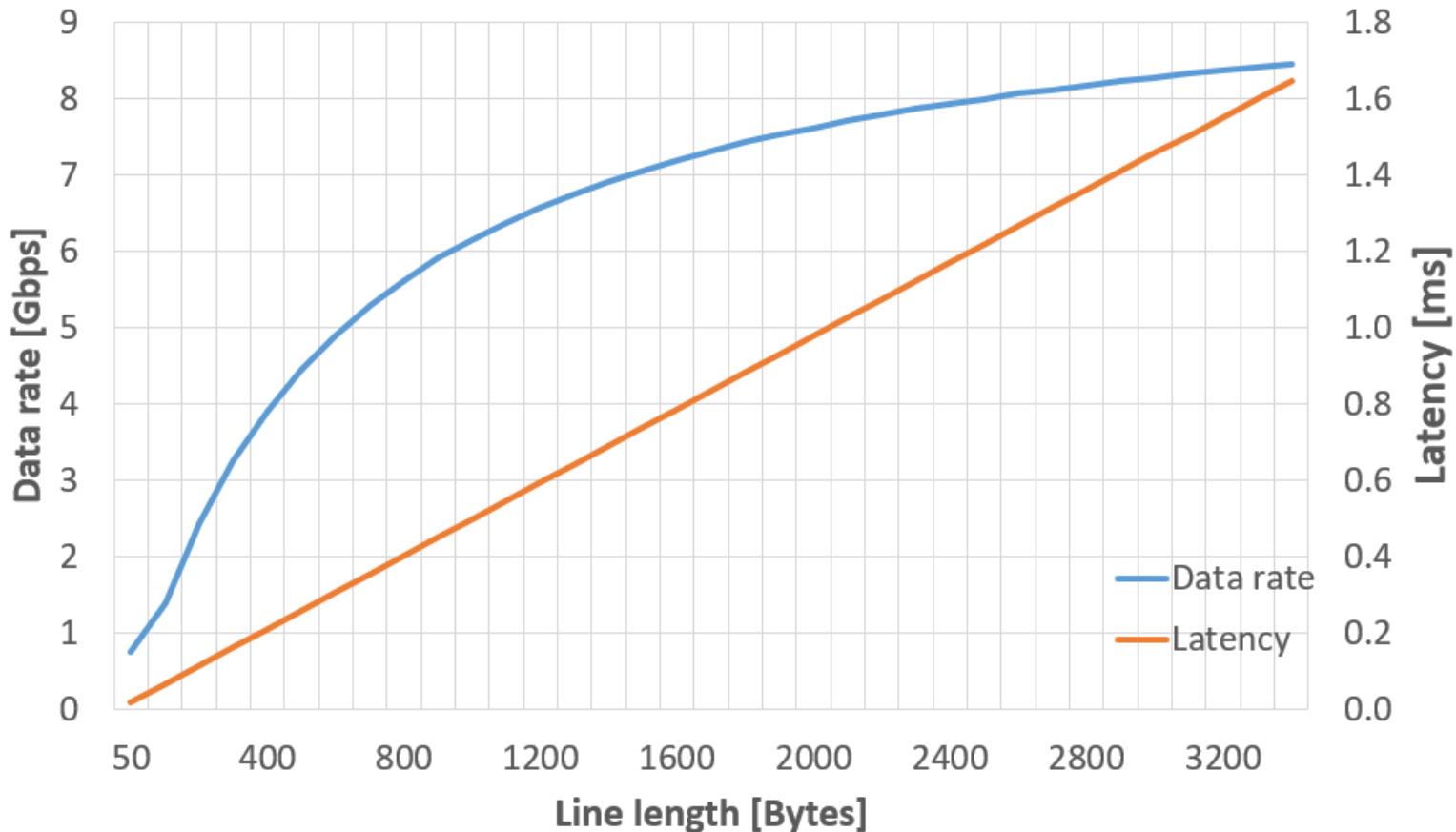
Frame height

SP Short Package
lp low power
D Data byte

NO ?

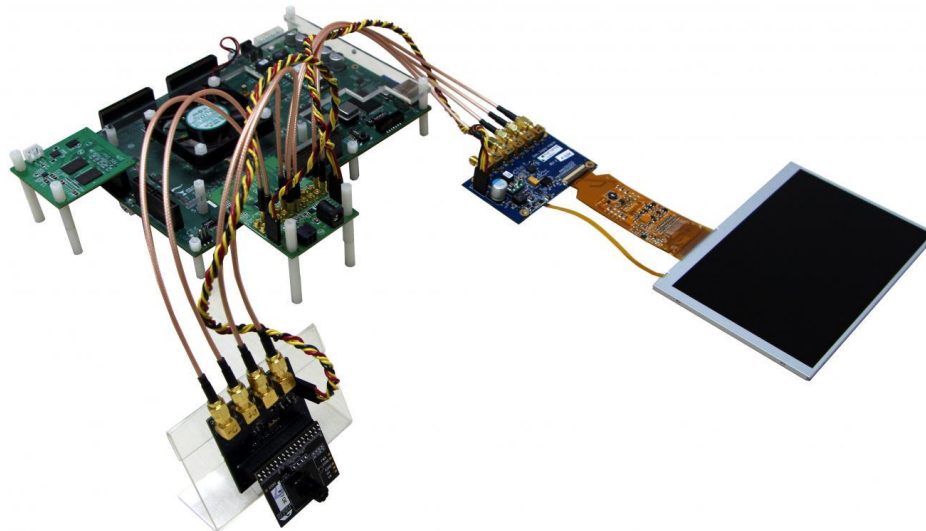
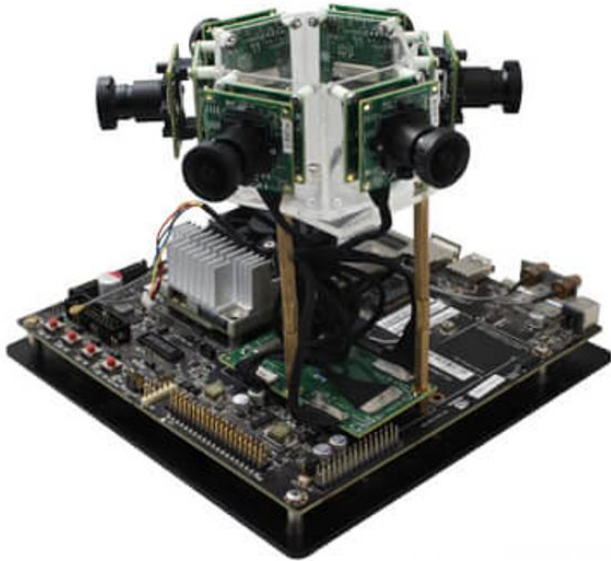
Data rate – Latency Simulation

Data rate & Latency



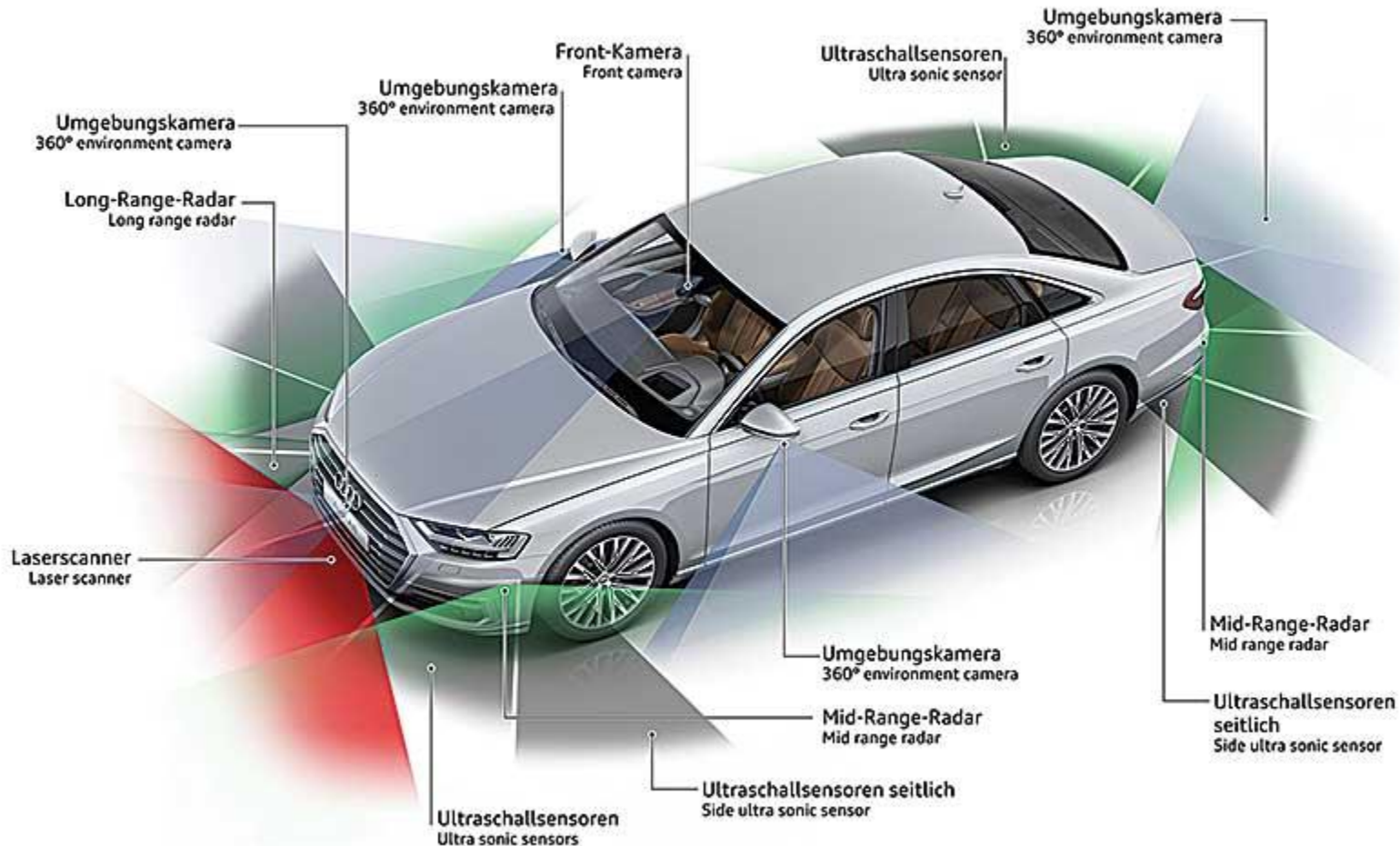
YES

Mobile devices are small



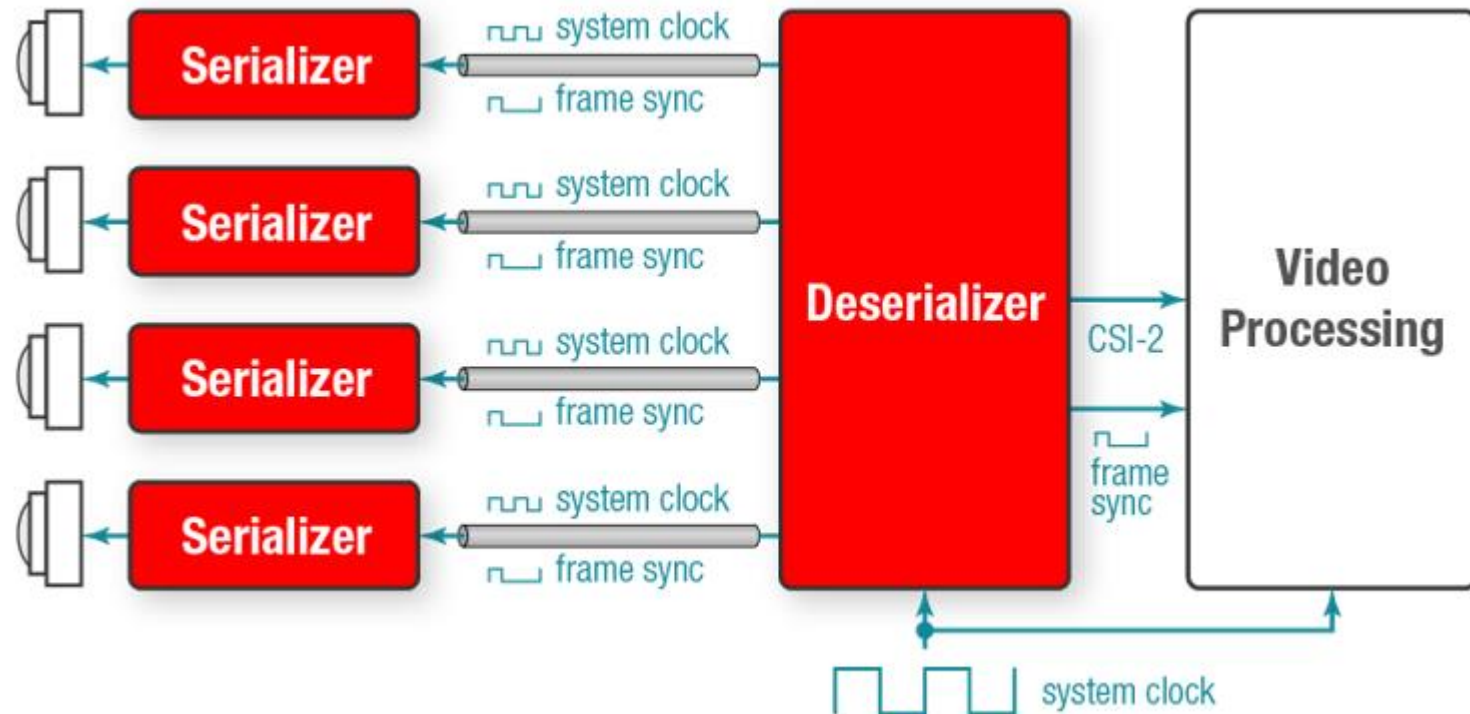
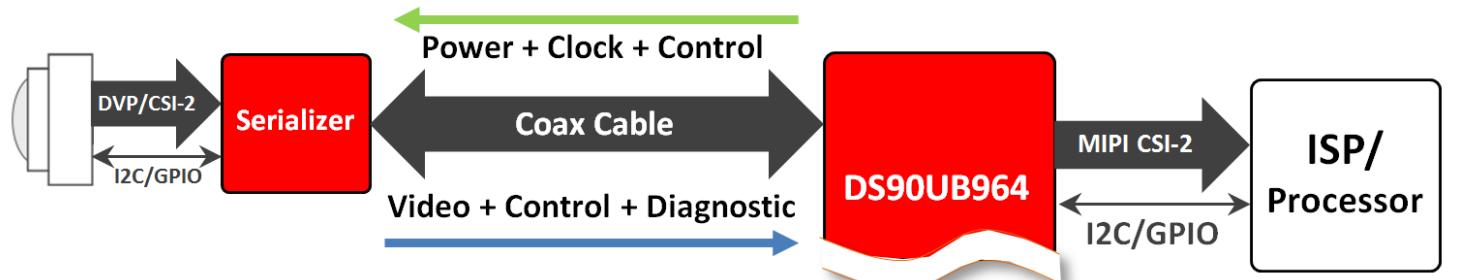
NO

Thanks Autonomous driving

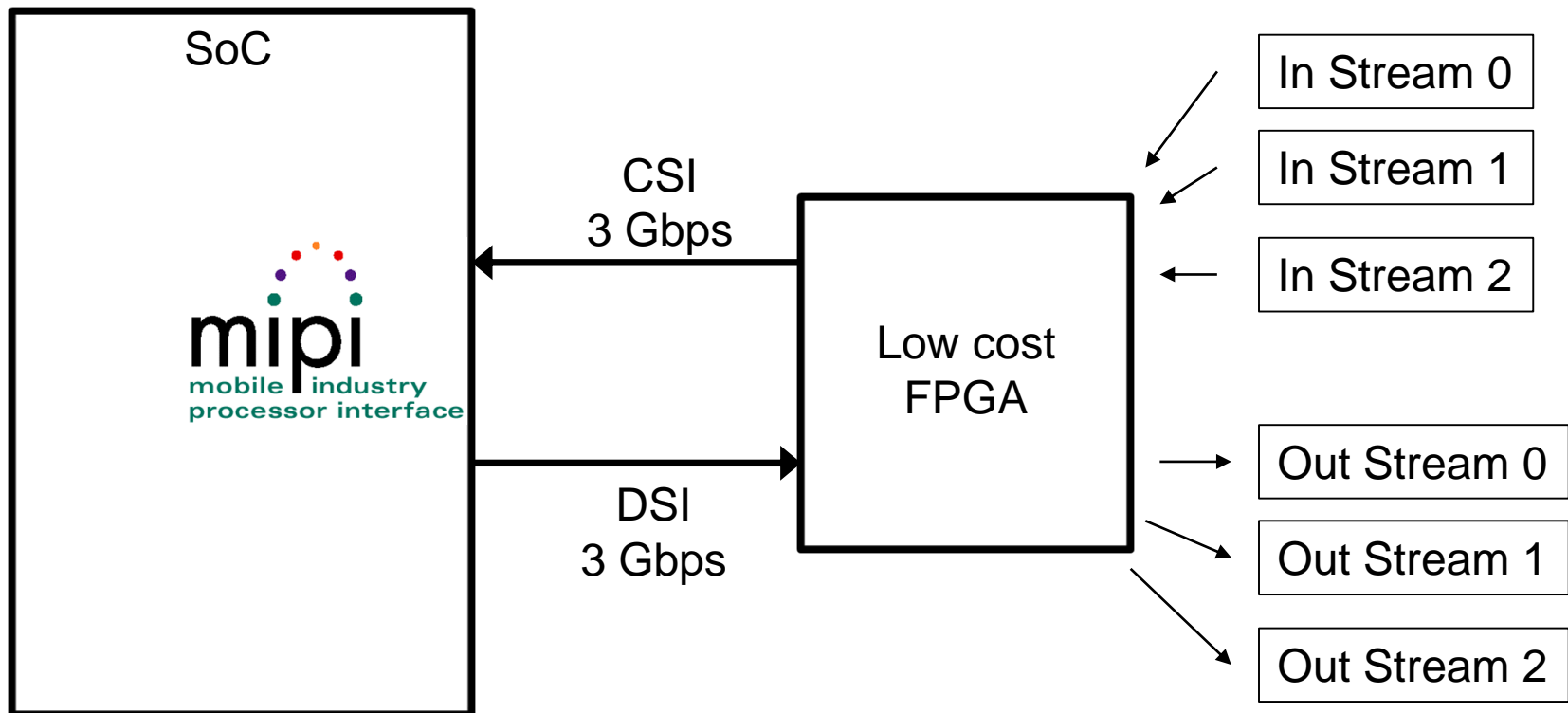


YES

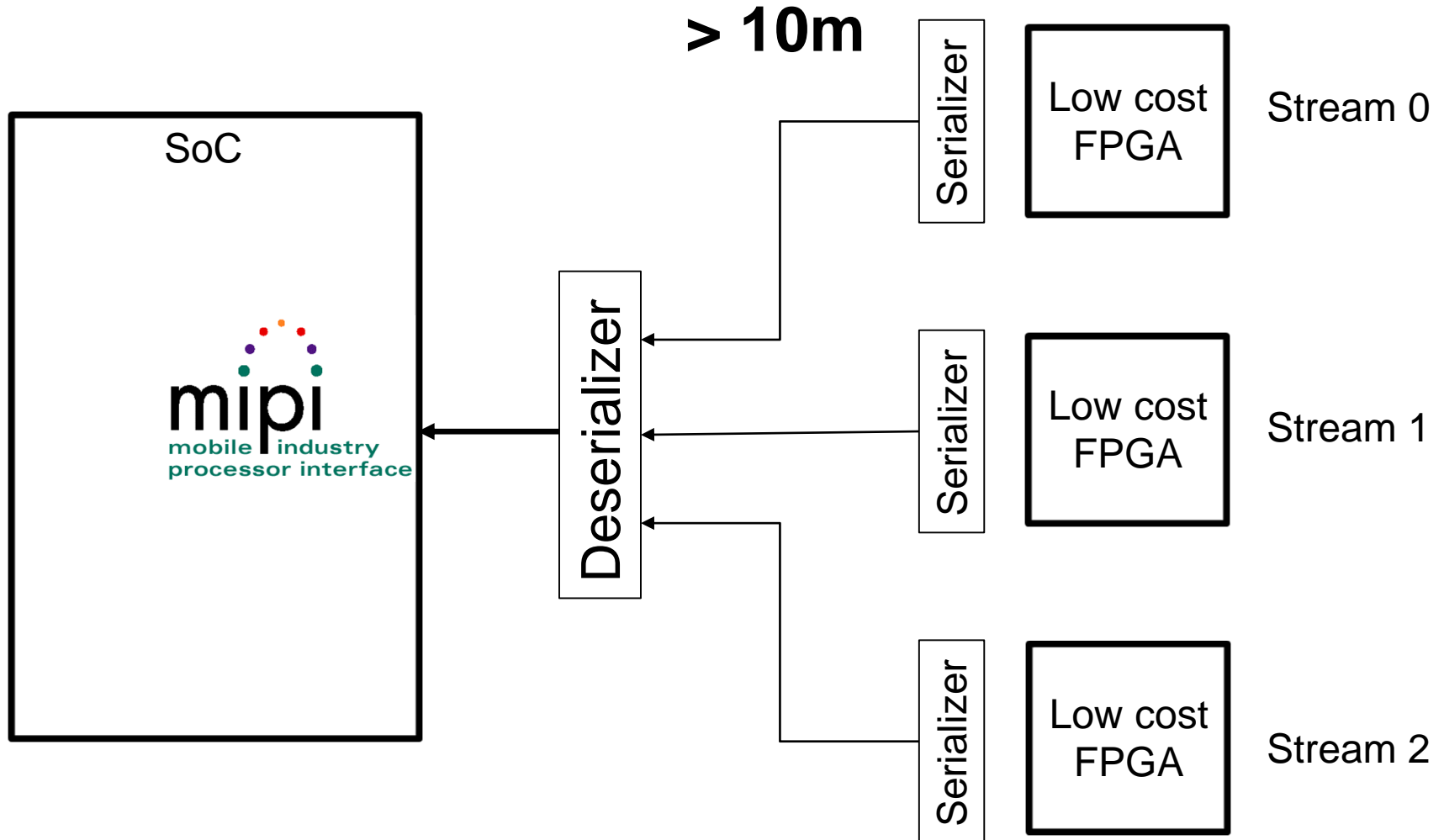
FPD Link III / GMSL



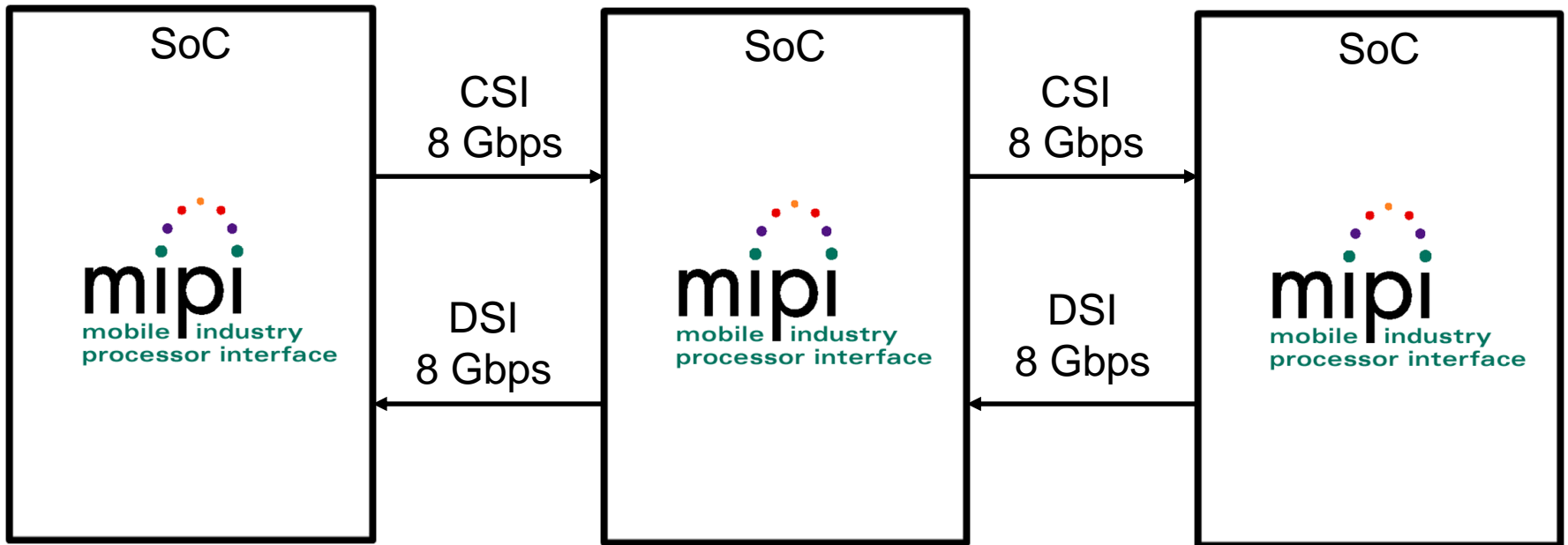
Concentrate



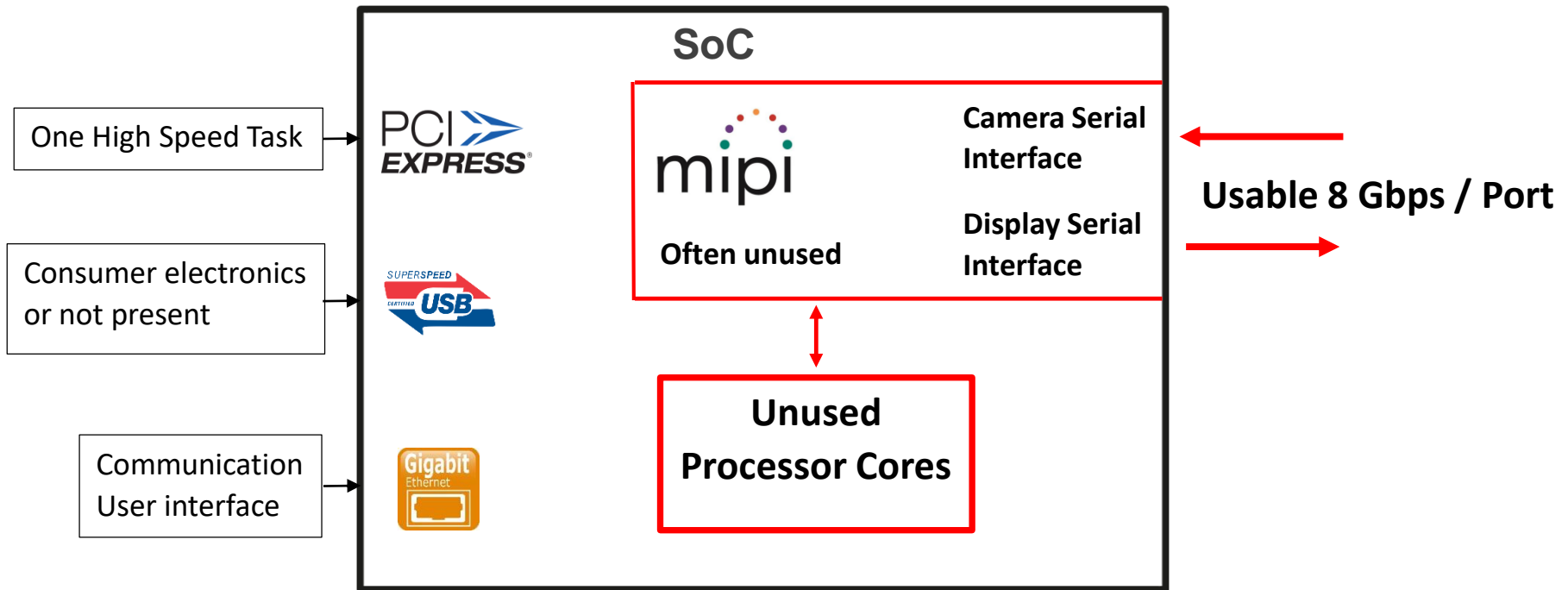
Collect



Share processing



Recap



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