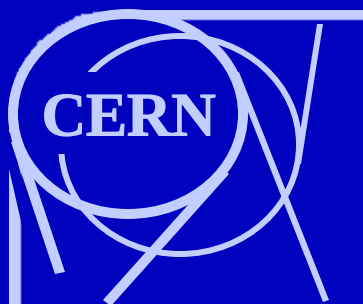




# GSN Activities at CERN

**1 Gigabyte Ethernet >><< GSN**

**2 Optical Tests**

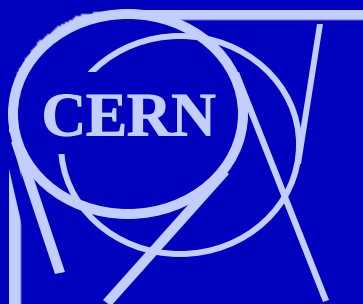
**3 OC48c >><< GSN**

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e-mail [a.van.praag@cern.ch](mailto:a.van.praag@cern.ch)

Tel: +41 22 767 5034 FAX: +41 22 7679495



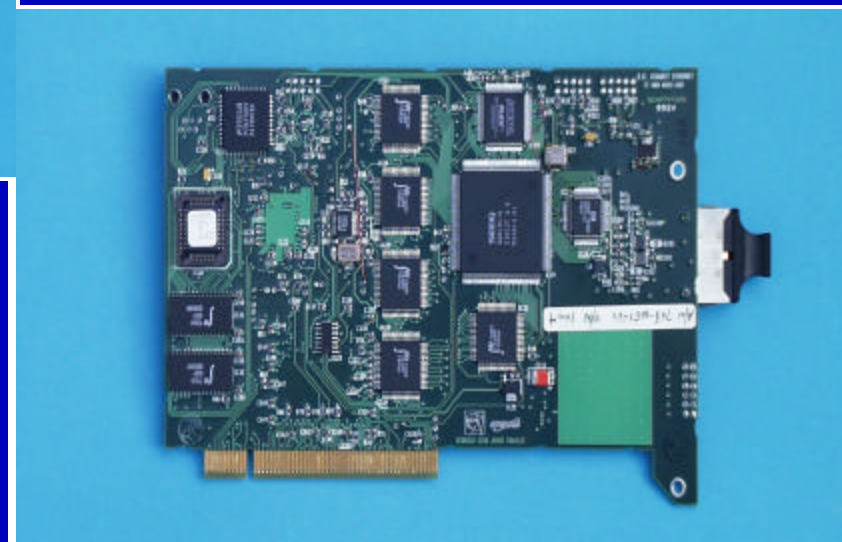
# GSN >><< GigE Blade

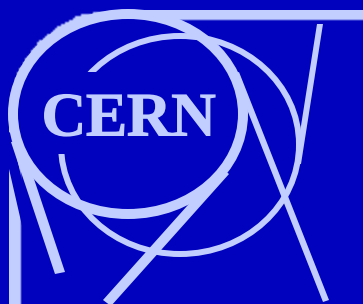
for the Genroco Bridge



Component Side

Solder Side

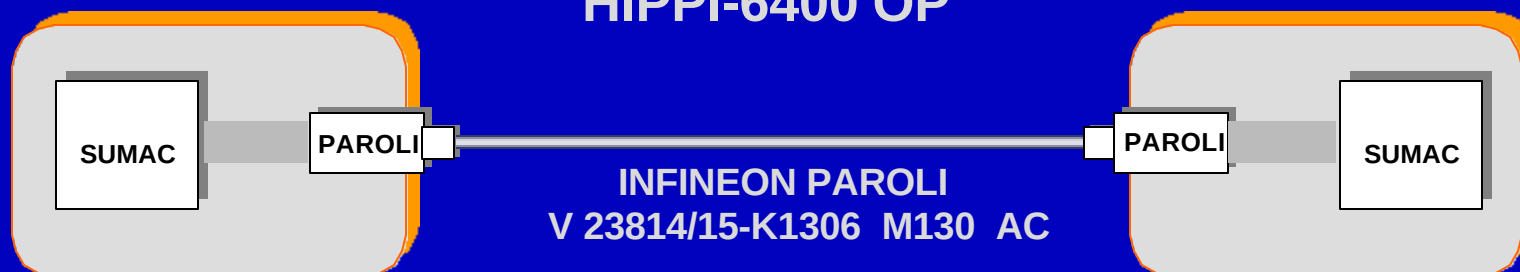




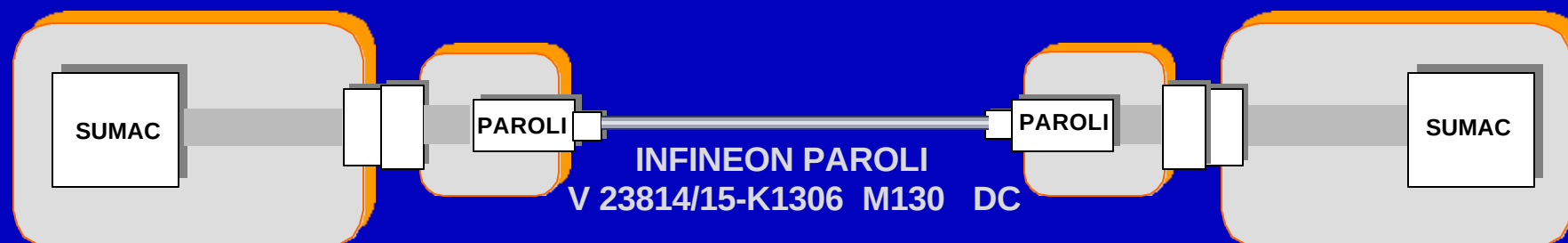
# Optical Tests

Use Infineon *PAROLI'S* and/or Gore *nLIGHTEN*

## HIPPI-6400 OP



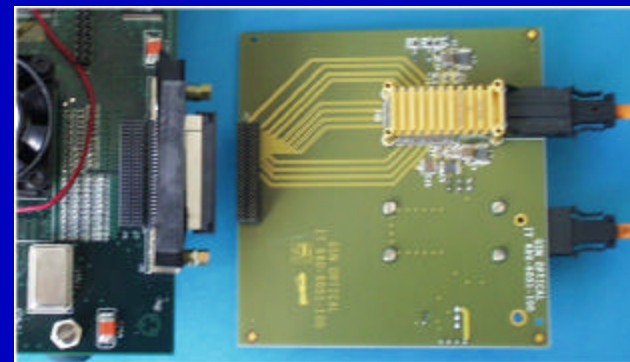
## Copper Cable Replacement



## Problems with SUMAC chip in 8 bit mode

### According to SGI:

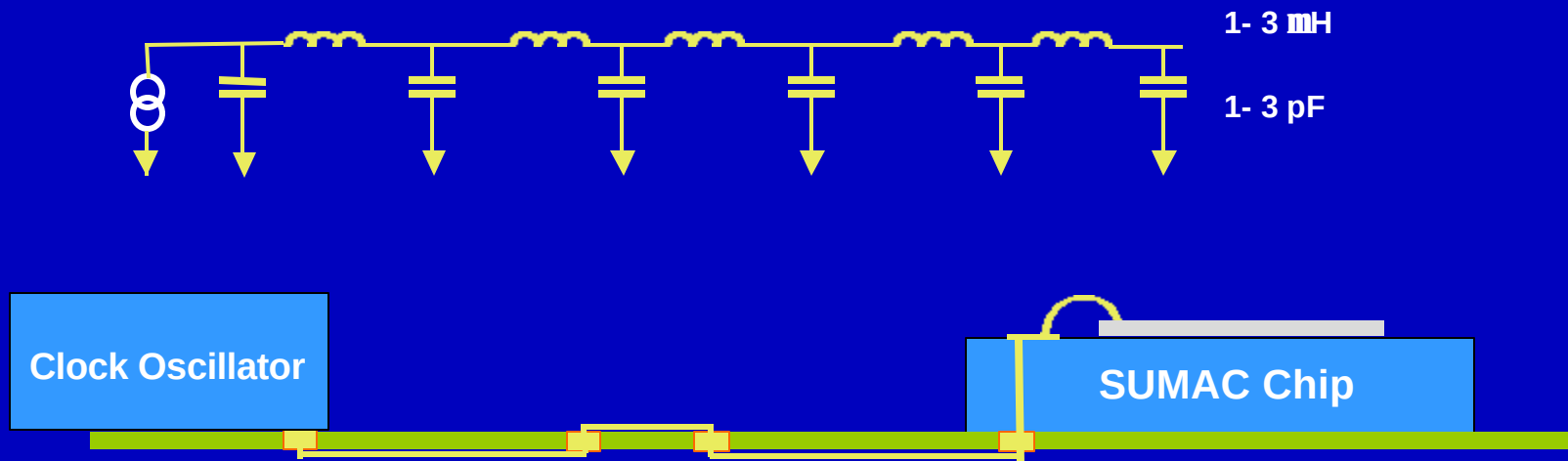
- ★ Chip never tested at full clock frequency
- ★ Simulations show critical behaviour at full clock frequency
- ★ The IBM Silicon process ( copper over Silicon at 0.18  $\mu$  )



## Problems with SUMAC chip in 8 bit mode

### And my Opinion:

- ★ No commercial clock components at the market for 1GHz.
- ★ No clock doubling on chip, how to get a proper clock in .



# Solution of the Problem

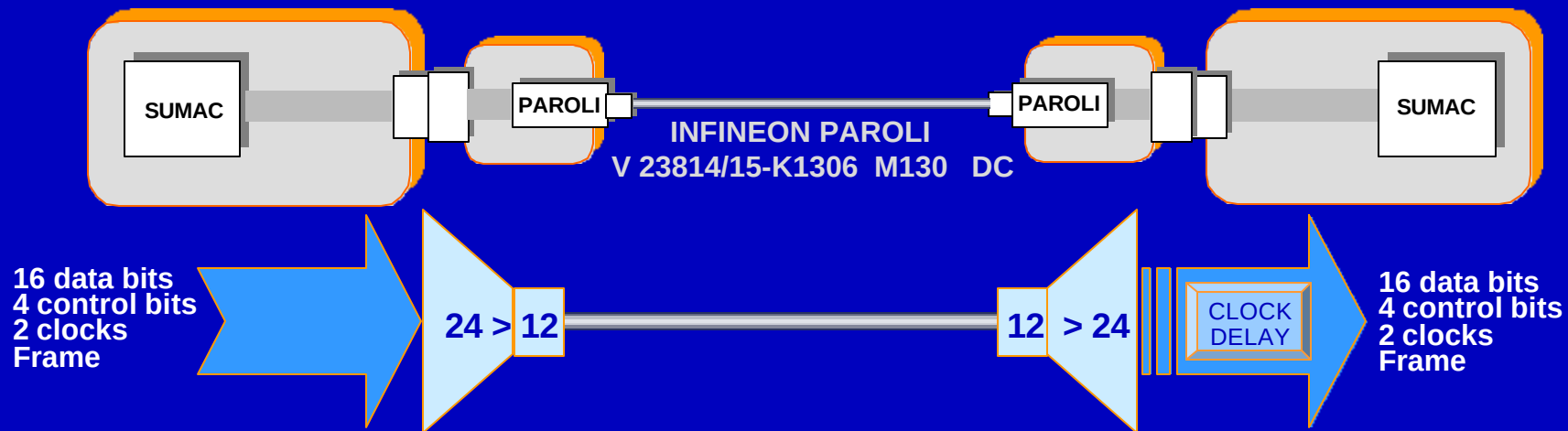
## use the Paroli DC version

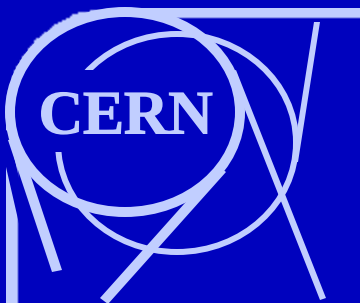
To solve the problem we may have to go to the Paroli DC version

- ★ Full speed transfers at half the clock speed.
- ★ Connects to the 16 bit mode of the SUMAC chip and
- ★ uses the same capacitive coupling.

But we need an Industrial standard very rapidly.

We may have to redo the HIPPI - 6400 OPT standard completely.

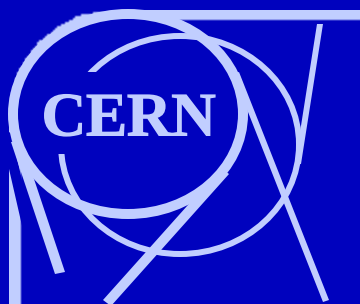




## HIPPI-6400 OPT as for Paroli AC

- ★ 12 Channels.
- ★ SUMAC running at 1GHz.
- ★ Multiplexer and DC Balancing in SUMAC Chip.
- ★ Compliant to HIPPI-6400 OPT ( except connector )





## HIPPI-6400 OPT adapted as for Paroli DC

- ★ Paroli Dc has 23 Channels
- ★ SUMAC Chip runs at 500 MHz ( copper cable mode ).
- ★ Multiplexing and DC Balancing inside the Paroli. ( 4b5b upcoding internal )
- ★ Synchronous Transfer.
- ★ Make CLOCK2\_In with a 1 nsec delay.

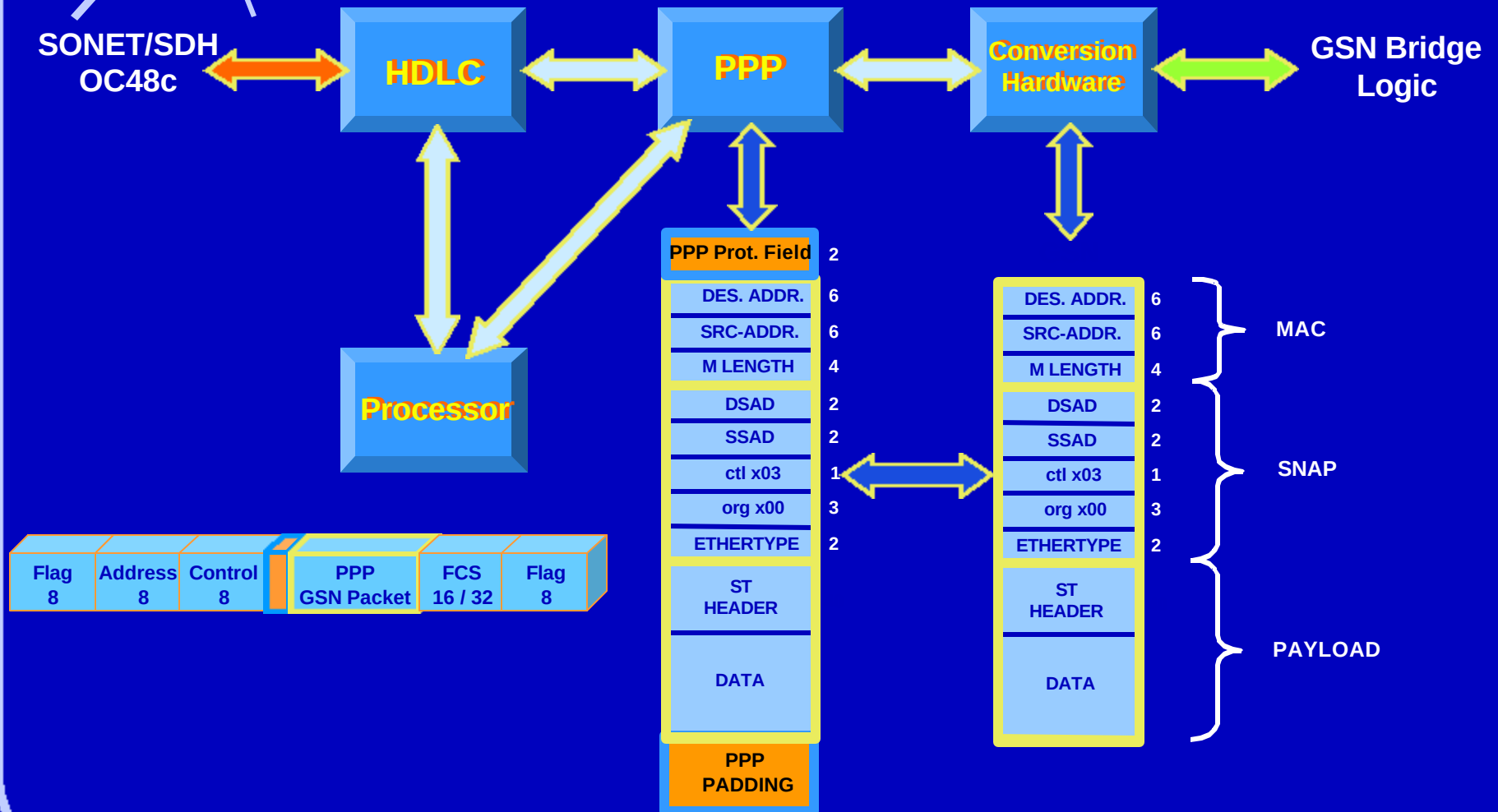


Because of the Internal multiplexing it is difficult to define channels: such define pin numbers



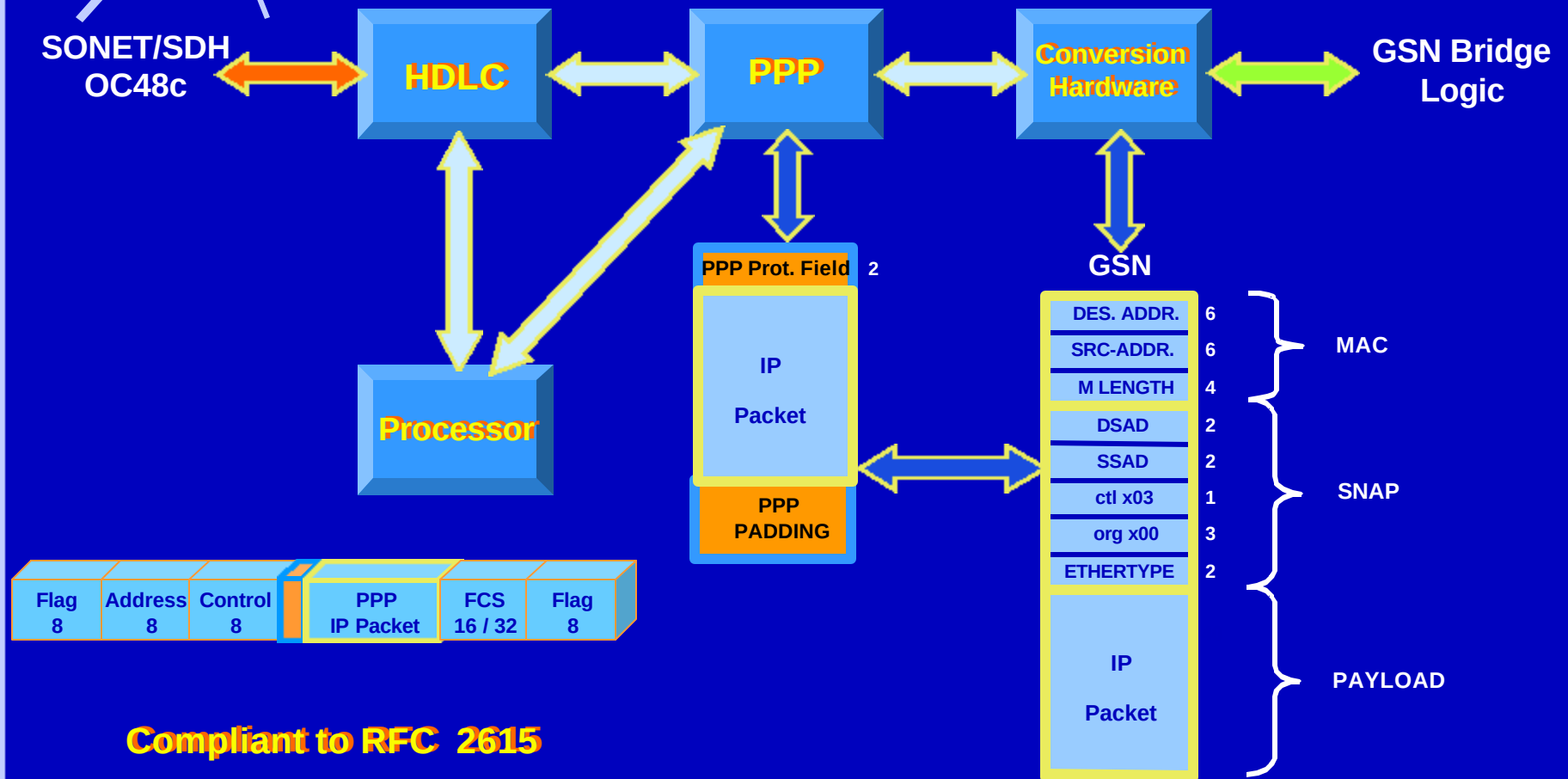
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# OC48c GSN ST Header Conversion



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# OC48c GSN IP Header Conversion



Compliant to RFC 2615