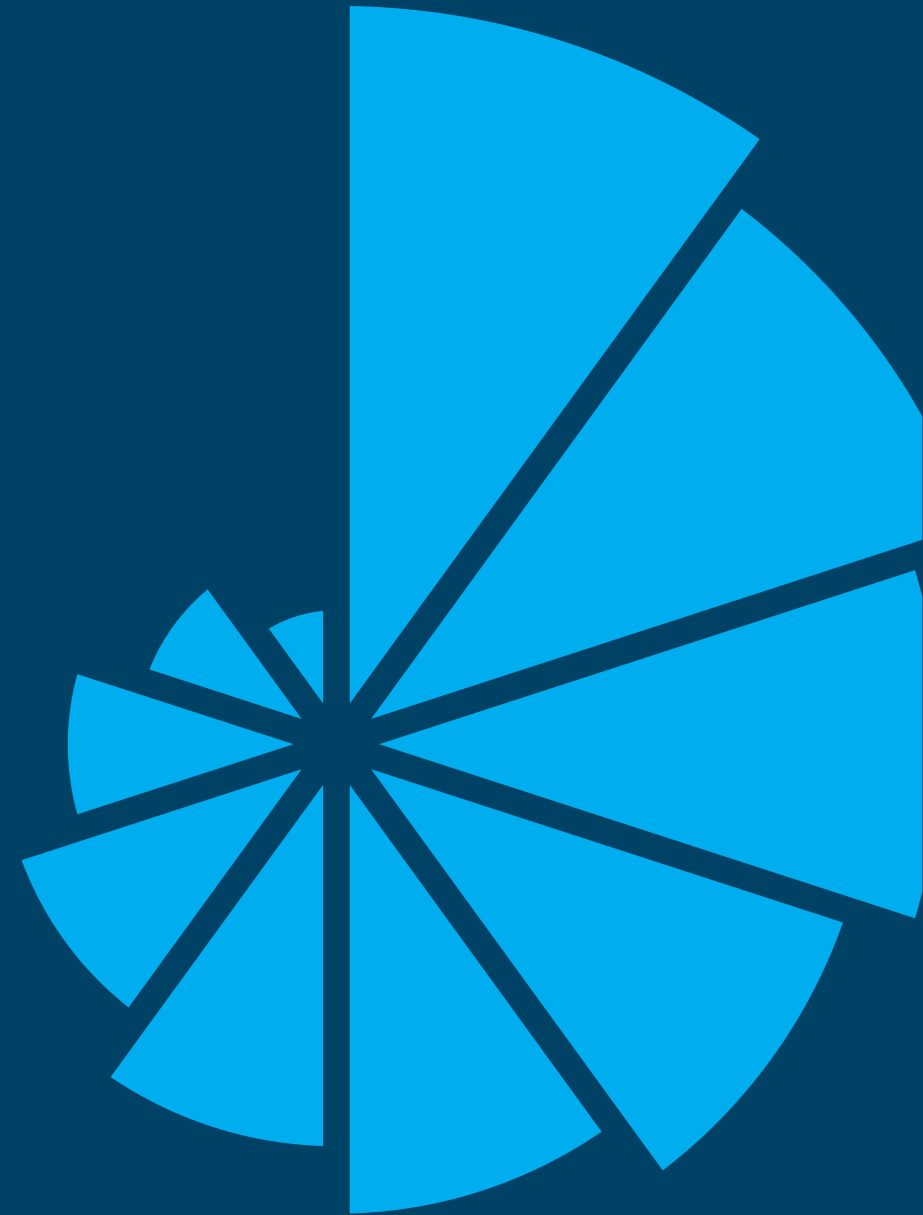# Elenos Group Webinar:

The RF Supercomputer

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Webinar Schedule

- The Million Dollar Question
- Why a RF Supercomputer?
- Algorithms, Algorithms, Algorithms
- Prior Technology – the History
- OK, let's finally see it
- Some Spec's
- What have we achieved – i.e. what qualifies it as a **RF Supercomputer**?
- Your Questions

Your host:
Chuck Kelly
VP Market Development

Special Guest:
Morten Simonson
CTO – Elenos Group

SBE   *Remember, watching this webinar qualifies for ½ credit towards SBE certification under Category 1.*

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The Million Dollar Question

Why an RF Supercomputer?

- More complex transmission modes
- Reduced PA linearity
- IP STL links
- SFN's require precise timing
- Remote monitoring and control
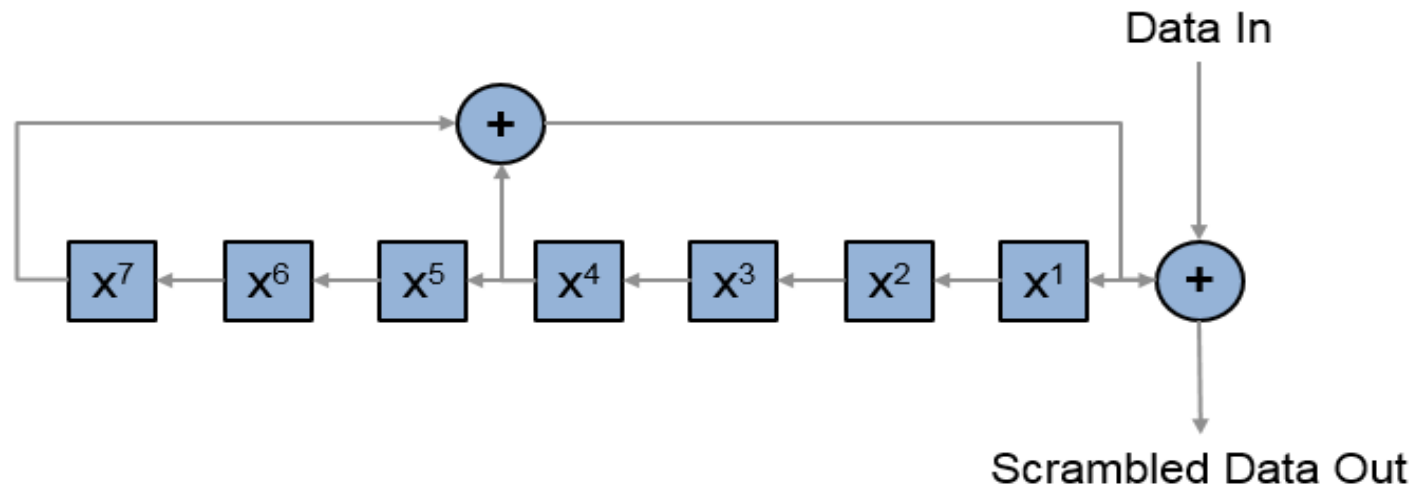- Eventual move to IP v6
- Things we haven't even thought of yet

Why a RF Supercomputer?

- Ever increasing pace of change
- Traditional hardware just doesn't do it
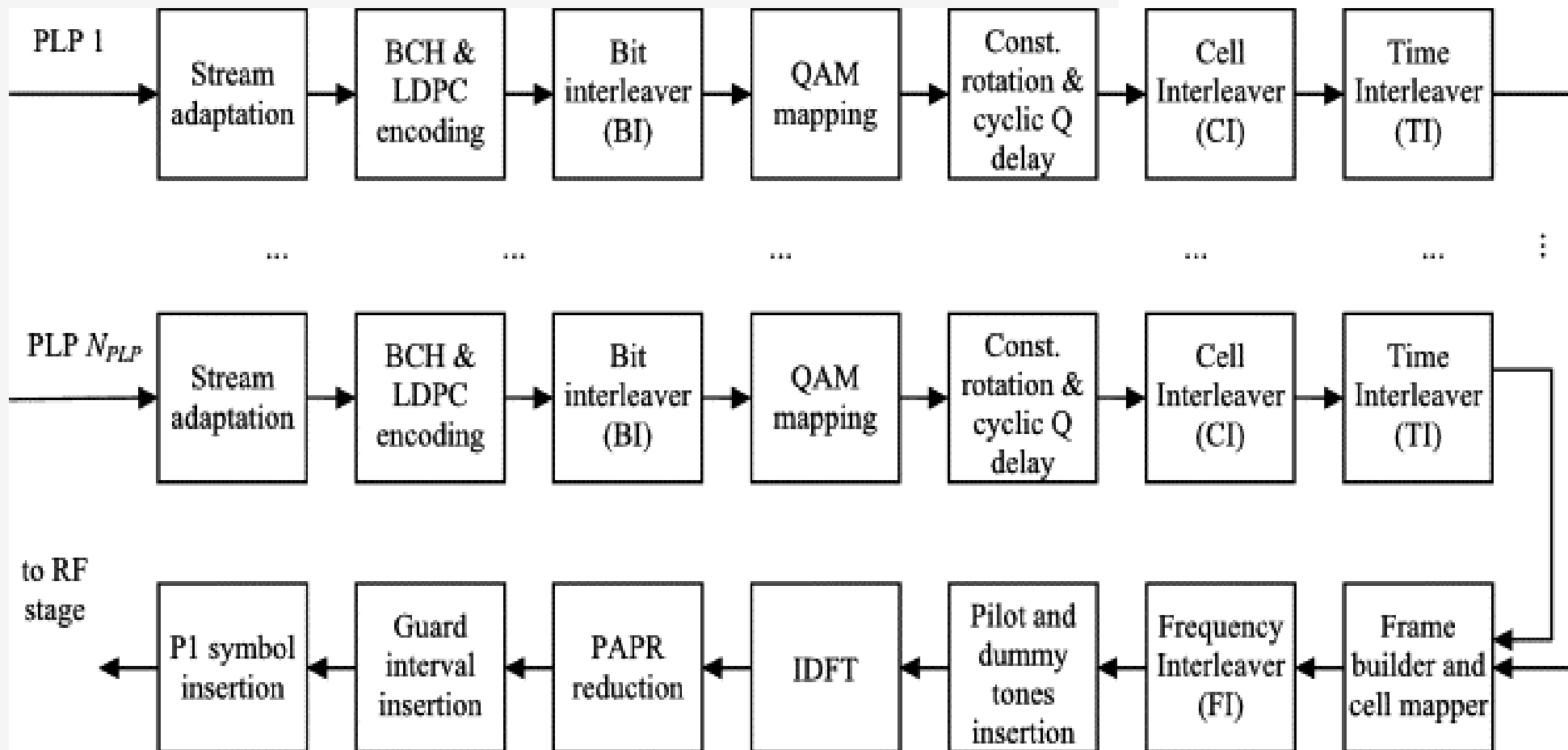- We needed a single hardware platform that could do it all
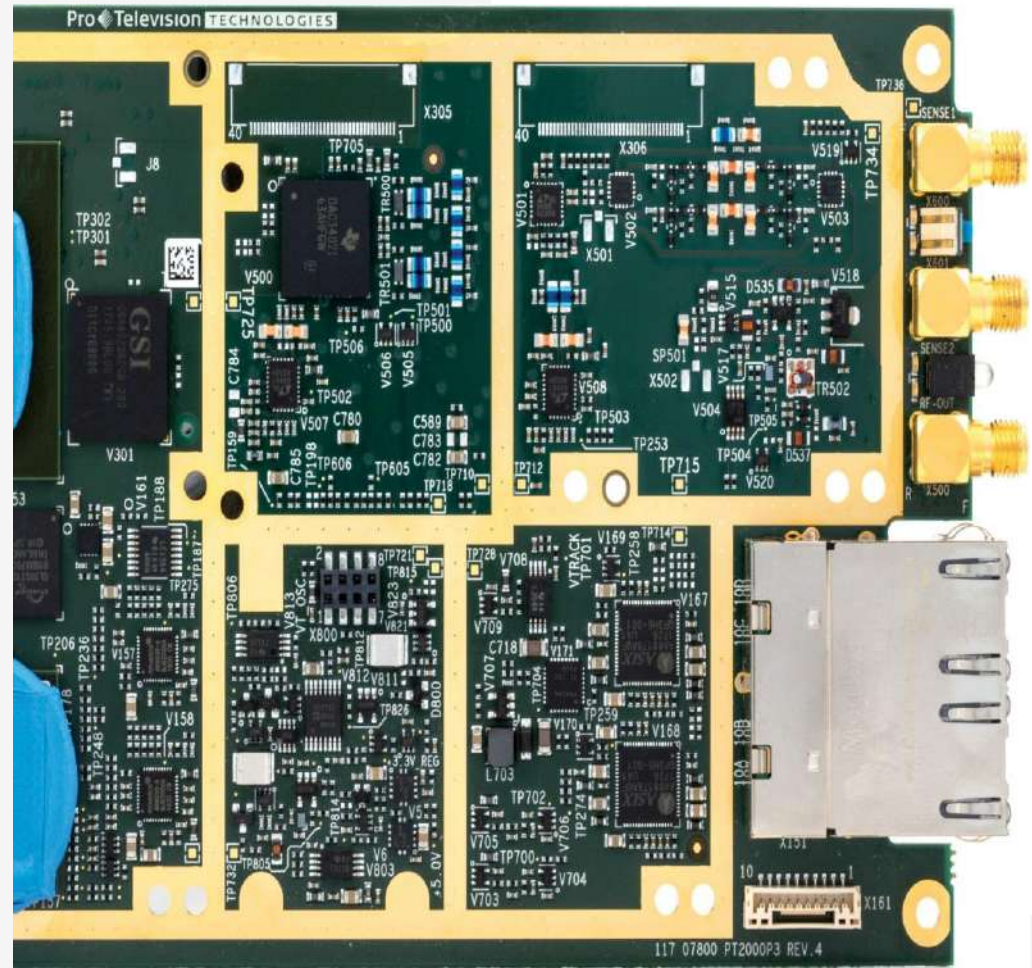
Algorithms, Algorithms, Algorithms

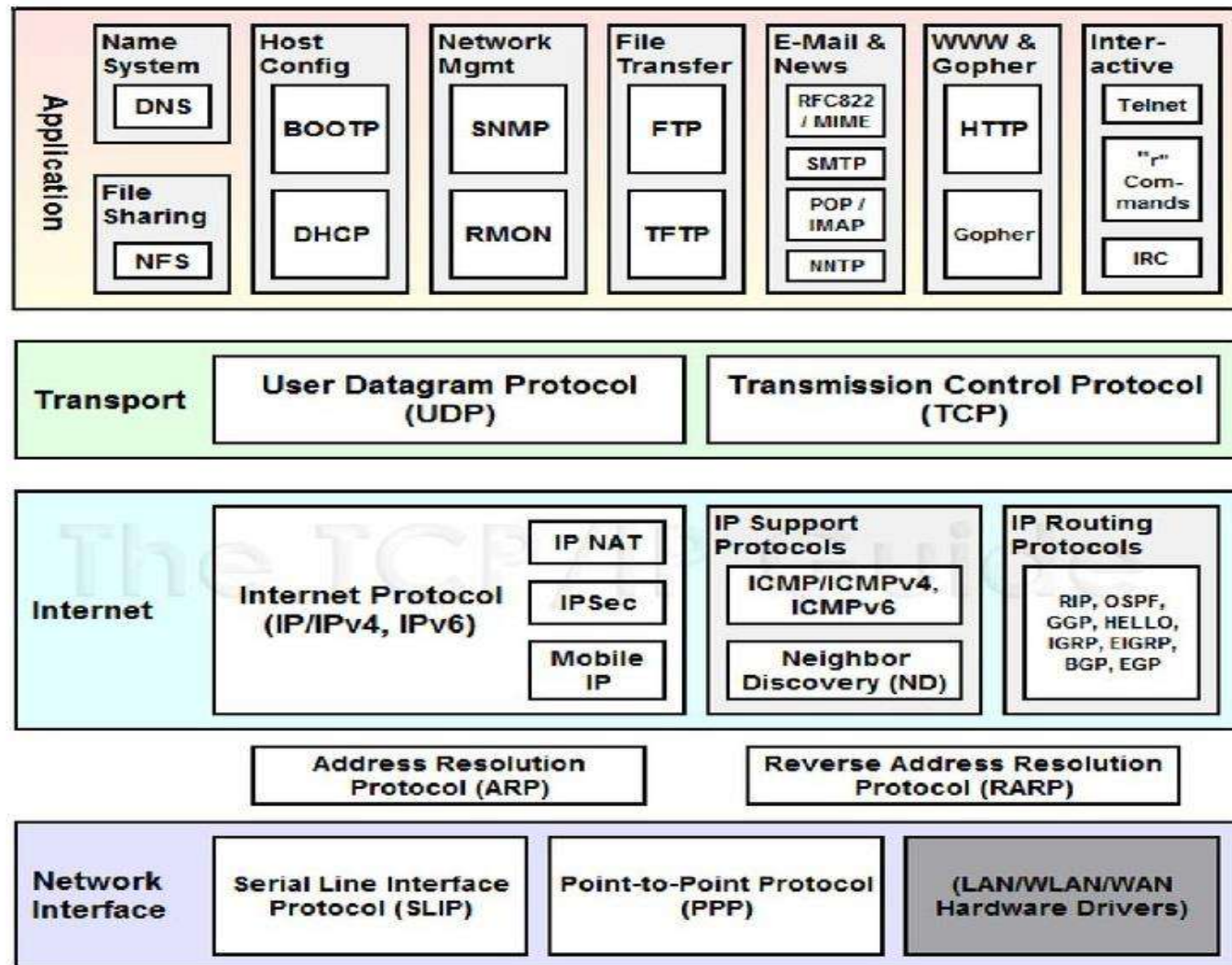- A simple scrambler ("whitens" data – de-correlates transmission-symbol from data content):

Algorithms, Algorithms, Algorithms - II

- But there are MANY blocks :

Algorithms, Algorithms, Algorithms

The IP protocol stack in itself is very complex and very dynamic in its nature.
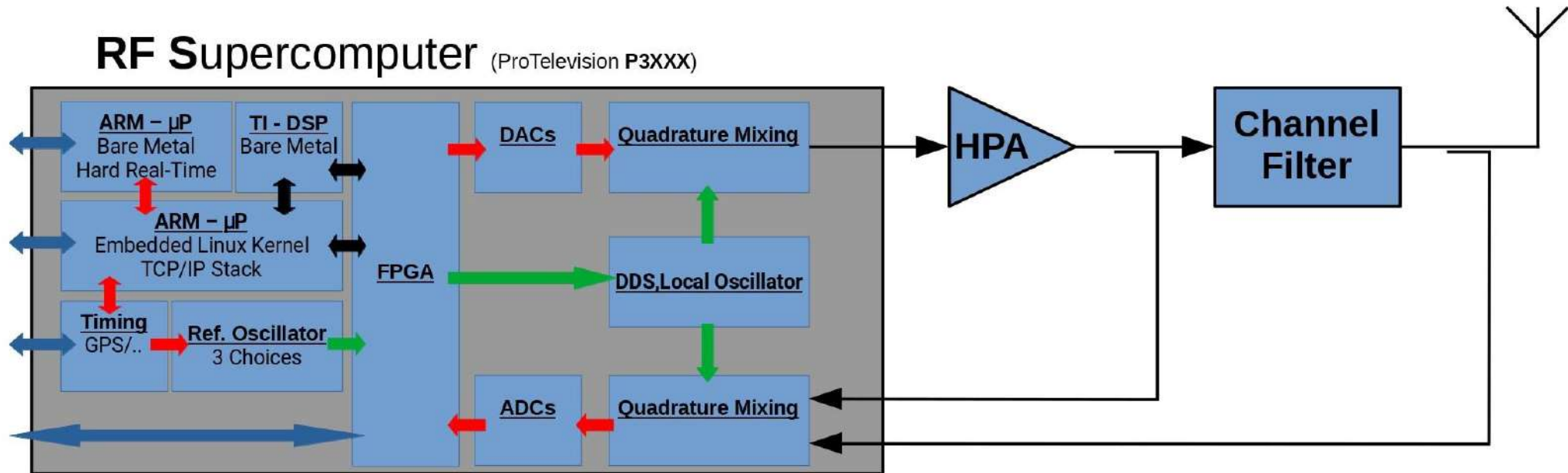
Prior Technology – The History

- 1964: Analog Modulator, dedicated hardware.

- 1999: First Digital Modulator (10 DSP in Parallel).

- 2001: Second gen. Digital Modulator (Own ASIC).

- 2005: Third gen. Digital Modulator (Own ASIC, FPGA).

- Current Digital Platform: **RF Supercomputer!**

OK, Let's finally see it

Some Specs

- 16 layer printed circuit board
- 2200+ electronic components
- 5 Ethernet ports with individual MAC addresses
- 100% Synchronous Design
- Radio Frequency Output from 30MHz to 760MHz, 1Hz steps
- Single supply voltage (5 to 50 V)
- Fully (remote) firmware upgrade
- Software Defined
- Build-in GNSS (optional: GPS, Glonass, Galileo & BeiDou)
- Onboard webserver control / monitoring (no FLASH Or Java)
- 3 different levels of Reference Oscillator (holdover duration)
- Currently supports: DVB-T/H/T2, ATSC legacy/3.0, ISDB-T/Tbb (with remux), Analog PAL/NTSC, DAB/TDMB/DAB+, ..)

The ProTelevision/Elenos Group RF Supercomputer is:

- A programmable hard real-time processor
- A programmable Linux real-time, multi-threaded processor
- A programmable DSP
- A large programmable FPGA
- A powerful combination!
- Super fast interconnections via DMA
- Smart programming to spread the work around
- One integrated board of programmable power
- Fast time to market as hardware is already done
- Reuse of code from one product to all
- Improvements in one product flows to all
- Engineers use their minds for innovation

Let's look at the web interface

Key points for review:

- The ProTelevision/Elenos RF Supercomputer is powerful
- It is programmable for any known RF TV/Radio modulation
- It operates from 30MHz to 760MHz
- Includes GNSS timing receiver
- Allows advanced PAPR for improved efficiency
- Includes powerful signal analysis which facilitates precorrection
- Integrated webserver for monitor and control
- Field updatable for technological advances / new protocols
- Designed to be fed by IP or other inputs
- The RF Supercomputer is or will be the basis of ALL Elenos, Itelco and BE transmitters

Your Questions?

We'll try to answer them all here, but if we can't we'll email you.

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Thank You

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Broadcast Equipment
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We know how valuable your time is, and we are honored that you chose to spend time with us.

Please check out our upcoming webinar schedule at: www.elenosgroup.com/webinar/

For further information, contact your regional Elenos Group sales professional

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