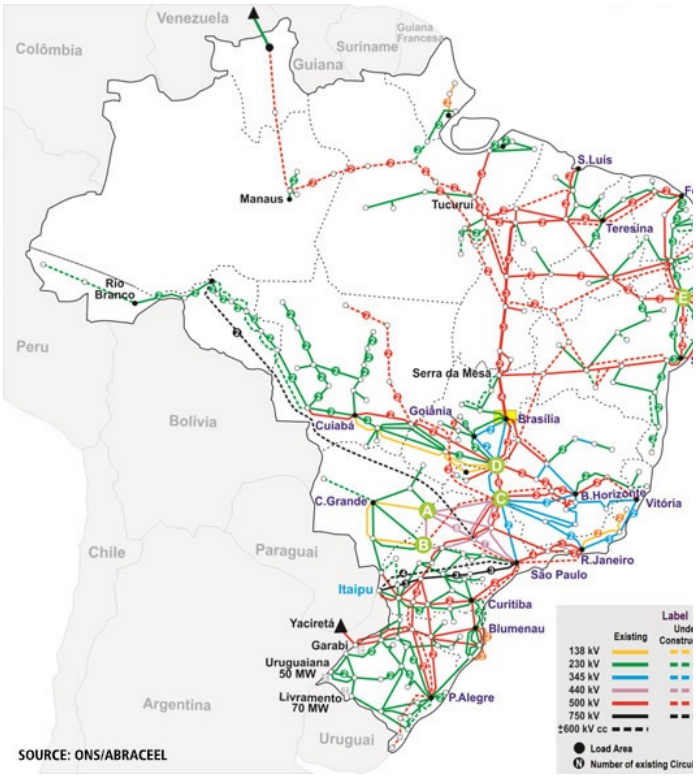
Benchmarks | Brazil 138 kV and Above Power System

Model name	**Brazil 138 kV and above power system**
Minimum license required	**HXG Max (6 cores)**

Highlights	• Largest available benchmark
	• Several computationally demanding components
	  • 8 DC links
	  • 85 nonlinear transformers
	
	HYPERSIM automatically parallelizes the network into 497 tasks and distribute all available cores for maximum speed

Model diagram	
Single-phase nodes	2542
Sources (3)	42
Transformers (3)	109 (24 linear, 85 nonlinear)
HVDC converters (12-pulse valve groups)	16
Single-circuit lines (3, Bergeron model)	374
Single-circuit lines (3, Frequency Dependent model)	6
Hardware	**OP5707XG** • **Motherboard:** SuperMicro X11DPL-i • **Processor:** Intel(R) Xeon(R) Gold 5222 CPU @ 3.80GHz; 8 cores • **RAM:** 32 GB
Software	• **Platform:** HYPERSIM • **Compiler:** Intel 2019 (19.03.199)

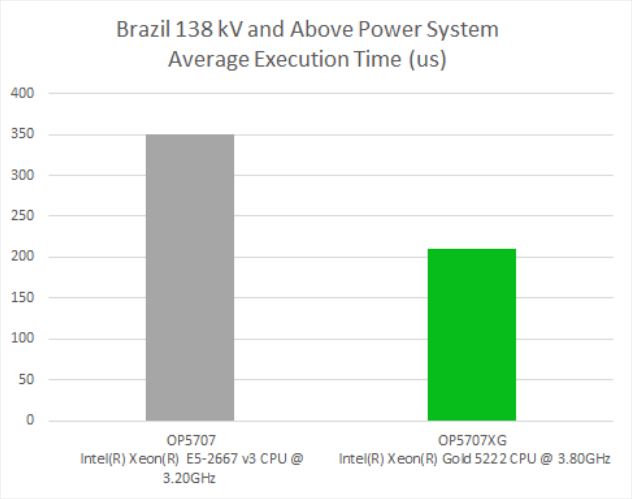
Results

- **Number of core(s):** 6
- **Minimum time-step:** 45 us *
- **Total average execution time (sum on all cores):** 210.6 us

* Performance under transient conditions varying considerably depending on t
type, this benchmark measures the minimum achievable time-step without ove
steady-sate conditions. A rule of thumb is to consider 10 to 20 % buffer time fo
calculations under transient conditions.

Benchmark

Performance comparison between new (OP5707XG) and previous (OP5700) hardware generations



66%

Speed Increas