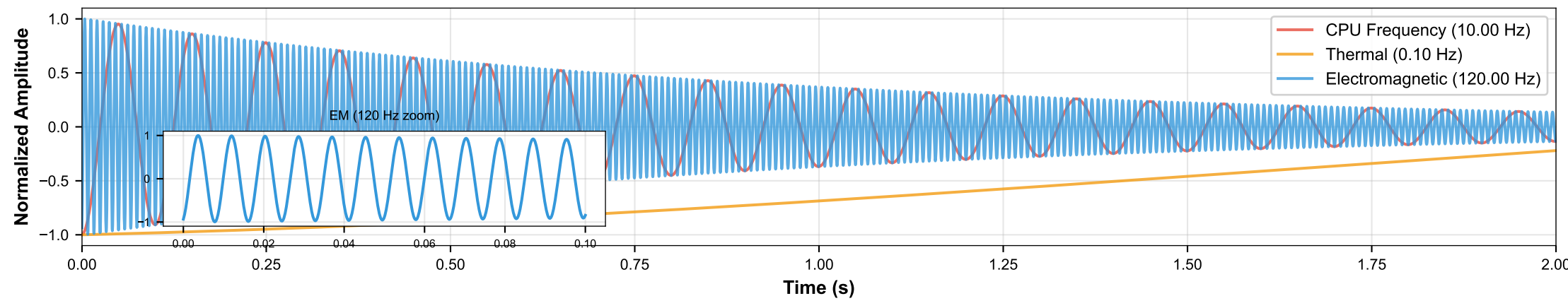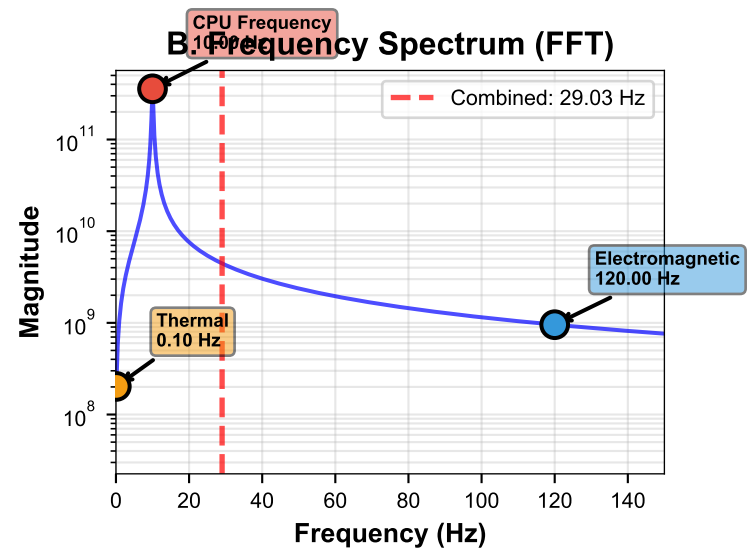# Hardware Oscillation Signature Analysis: Multi-Scale Coupling
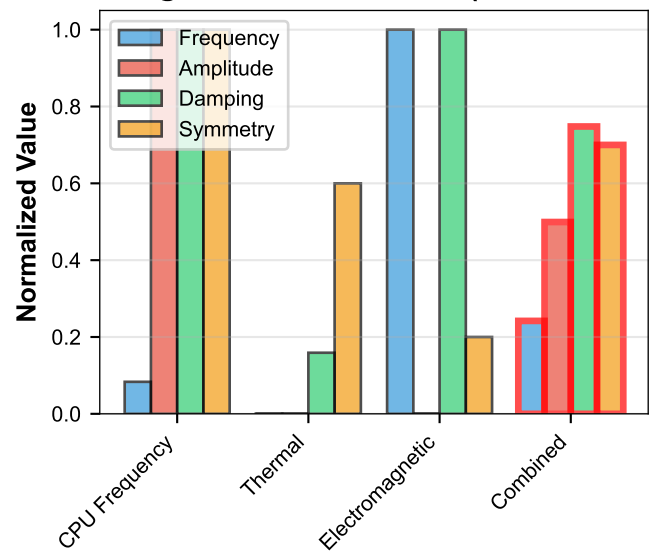
A. Individual Hardware Oscillation Sources

Legend:
- CPU Frequency (10.00 Hz)
- Thermal (0.10 Hz)
- Electromagnetic (120.00 Hz)

EM (120 Hz zoom)

Y-axis: Normalized Amplitude
X-axis: Time (s)

B. Frequency Spectrum (FFT)

- CPU Frequency 10.00 Hz
- Combined: 29.03 Hz
- Thermal 0.10 Hz
- Electromagnetic 120.00 Hz

Y-axis: Magnitude
X-axis: Frequency (Hz)

C. Signature Parameters (Normalized)

Legend:
- Frequency
- Amplitude
- Damping
- Symmetry

Categories: CPU Frequency, Thermal, Electromagnetic, Combined

Y-axis: Normalized Value

D. Hardware → Molecular Mapping

Scale Mapping

Hardware Scale
Frequency: 29.03 Hz
Amplitude: 3.57e+07
Phase: -1.477 rad
Damping: 0.748
Symmetry:

Mapping
×3.4×10^11

Molecular Scale (O₂)
Frequency: 1.00e+13 Hz (10 THz)
Amplitude: 6.09e+01
Phase: -1.477 rad
Damping: 0.000000
Symmetry: 0.007