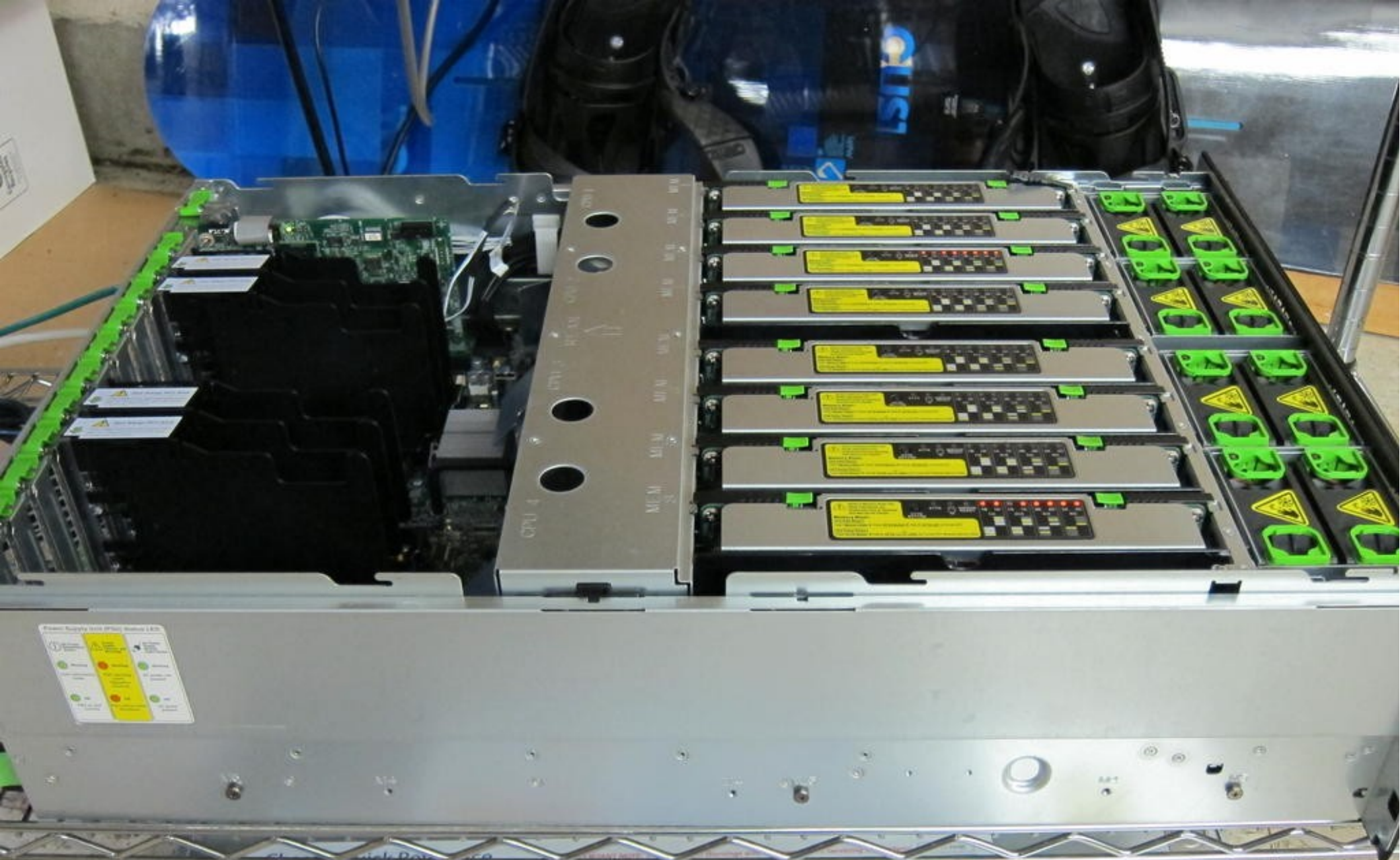


Linux Idle Power Checkup

Len Brown
Intel Open Source Technology Center

Linux Plumbers Conference
Sept 8, 2011
Santa Rosa, CA



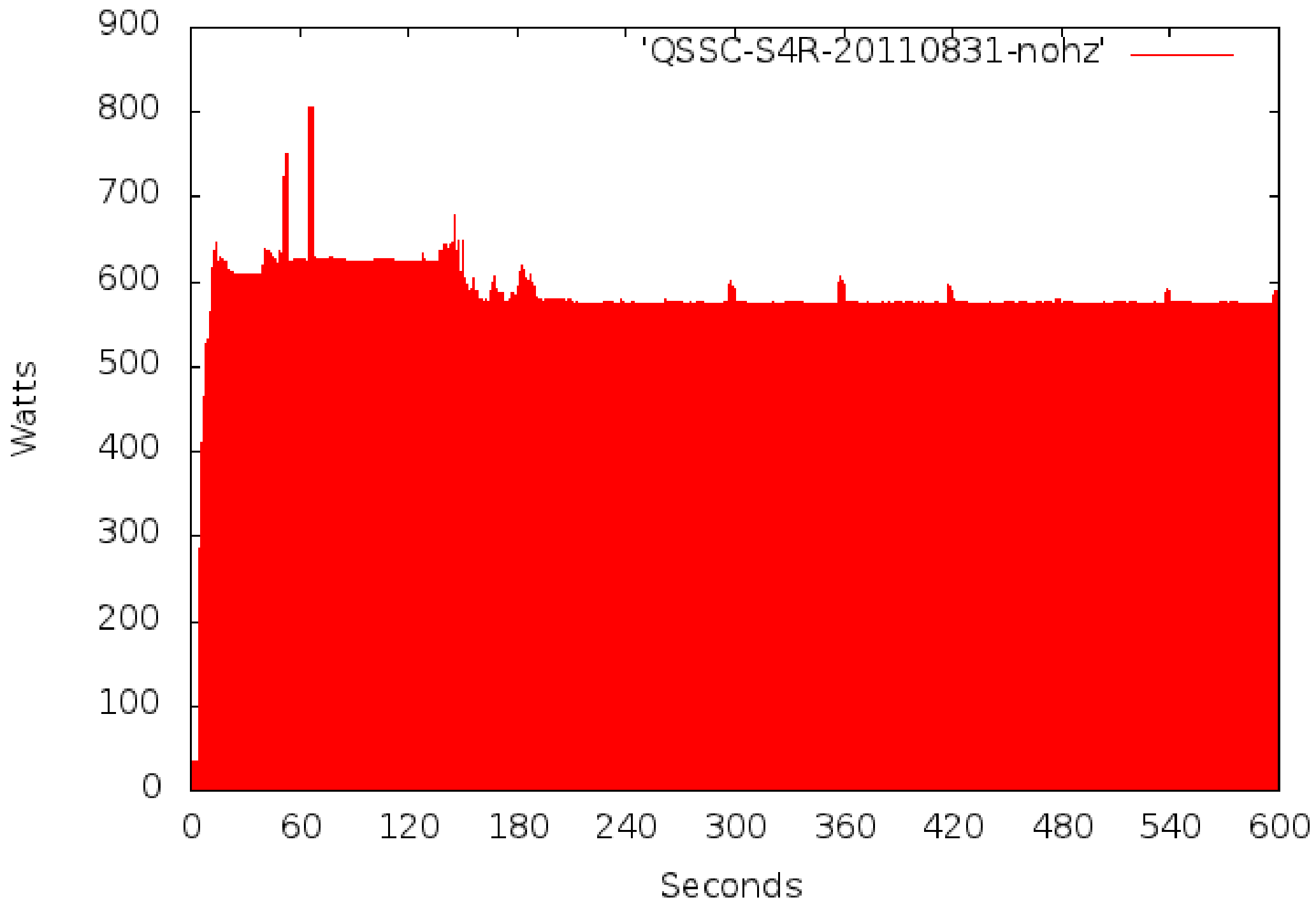
Power Supply Unit (PSU) Status LED

Green	PSU 1 OK
Red	PSU 1 Error
Green	PSU 2 OK
Red	PSU 2 Error
Green	PSU 3 OK
Red	PSU 3 Error
Green	PSU 4 OK
Red	PSU 4 Error
Green	PSU 5 OK
Red	PSU 5 Error
Green	PSU 6 OK
Red	PSU 6 Error
Green	PSU 7 OK
Red	PSU 7 Error
Green	PSU 8 OK
Red	PSU 8 Error

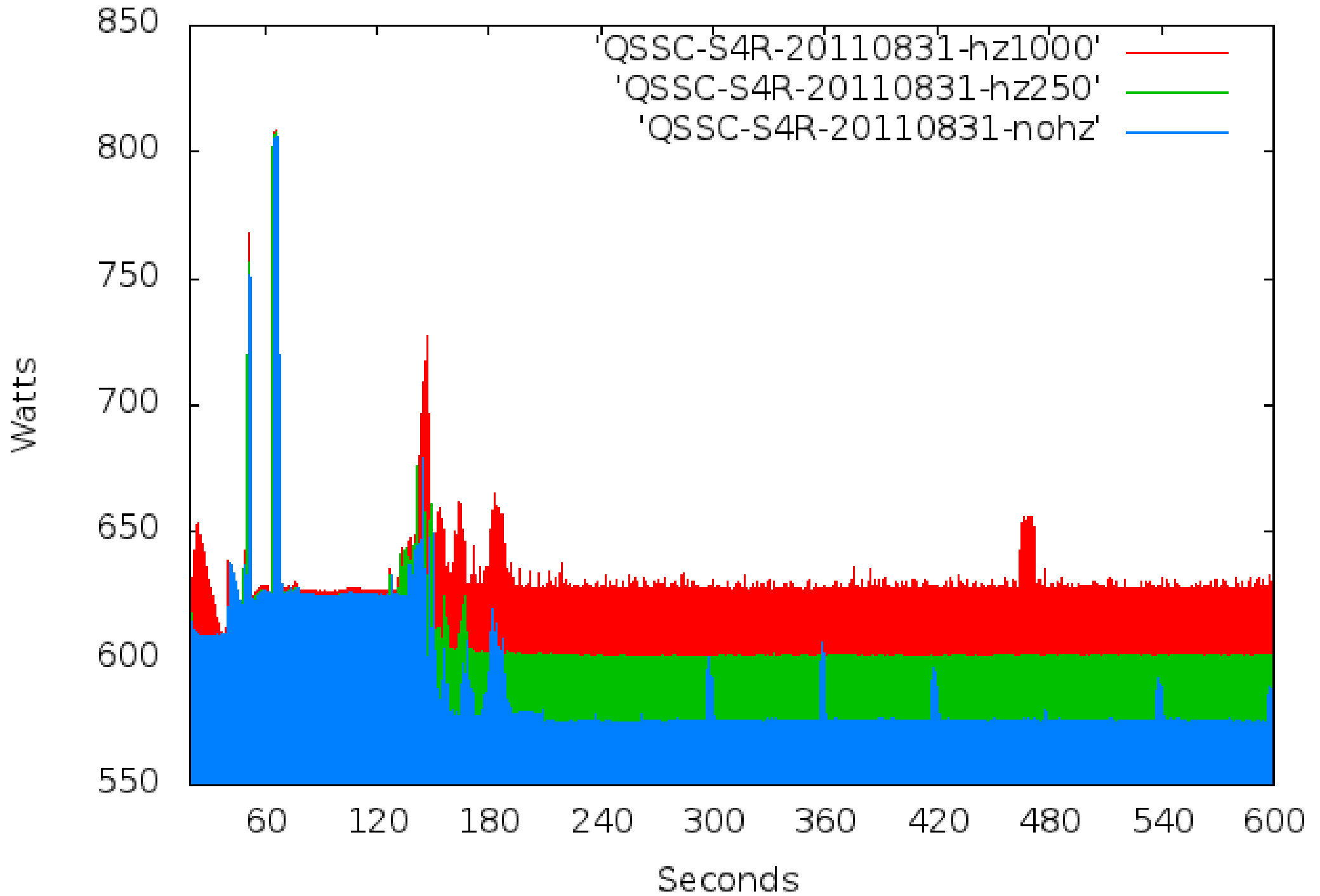




Boot/login/10-minutes Idle



Boot/login/10-minutes Idle



0 hz # turbostat

pk	cr	CPU	%c0	GHz	TSC	%c1	%c3	%c6	%pc3	%pc6
			0.05	1.19	2.26	0.11	99.84	0.00	98.76	0.00
0	0	0	0.73	1.06	2.26	0.56	98.71	0.00	98.32	0.00
...										
1	0	8	0.17	1.73	2.26	0.07	99.77	0.00	98.30	0.00
...										
2	0	16	0.17	1.22	2.26	0.14	99.69	0.00	99.07	0.00
...										
3	0	24	0.06	1.06	2.26	0.06	99.89	0.00	99.35	0.00
...										

1000hz # turbostat

pk	cr	CPU	%c0	GHz	TSC	%c1	%c3	%c6	%pc3	%pc6
			36.89	1.08	2.26	23.66	39.45	0.00	29.39	0.00
0	0	0	85.39	1.10	2.26	8.47	6.14	0.00	5.52	0.00
...										
1	0	8	64.94	1.06	2.26	9.51	25.55	0.00	22.11	0.00
...										
2	0	16	48.66	1.06	2.26	11.48	39.86	0.00	37.04	0.00
...										
3	0	24	32.78	1.06	2.26	11.93	55.28	0.00	52.88	0.00
...										

Samsung/Google chromebook

61 Watt-hour battery

< 10 second booting time

“amazing” 8.5 hours of battery life

12.1-inch LED-backlight display (300-nit)

1.66 GHz Intel Atom dual-core N570 processor

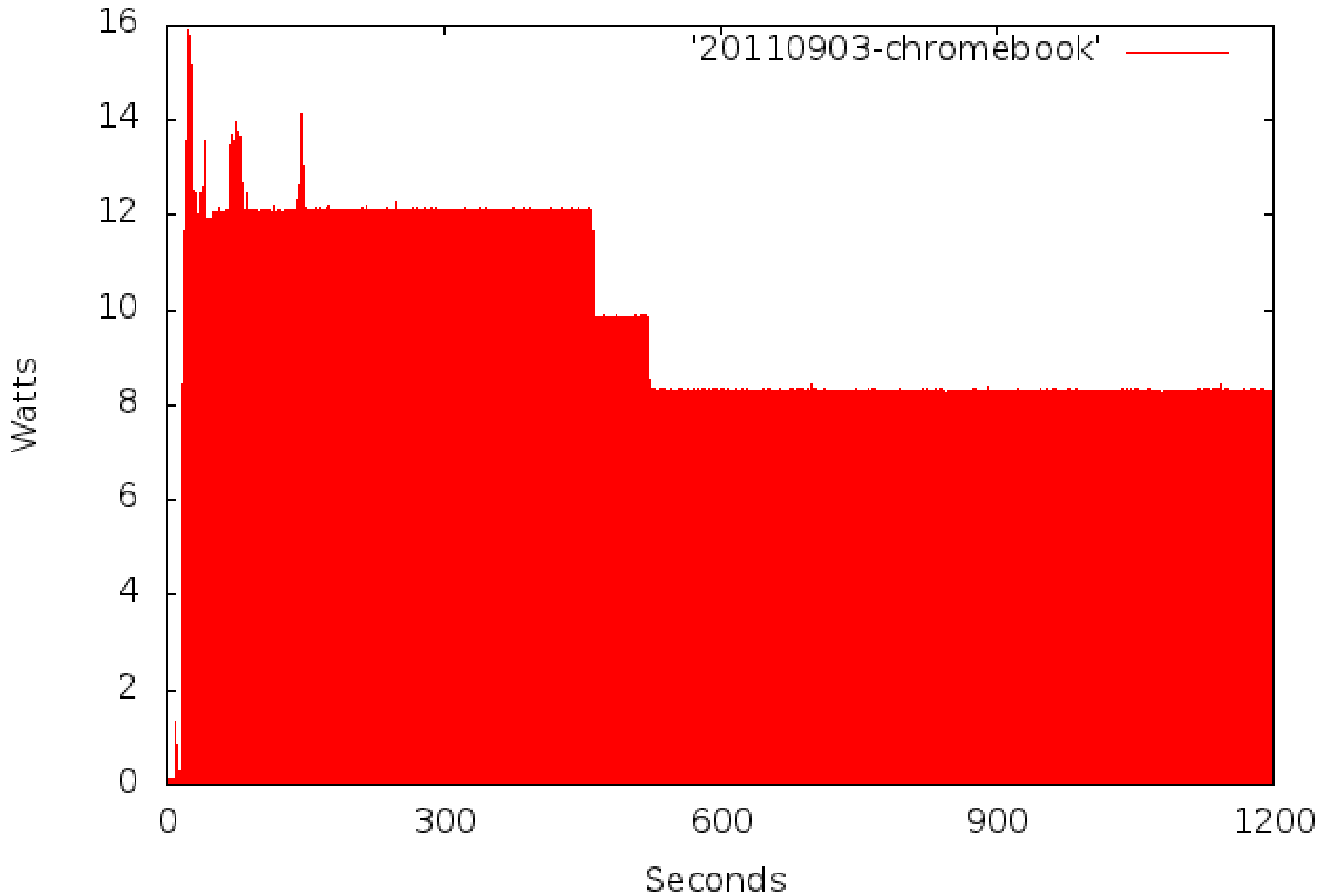
2 GB RAM

16 GB SSD

Wireless-N Wi-Fi



Boot/login/20-minutes Idle



Chromebook

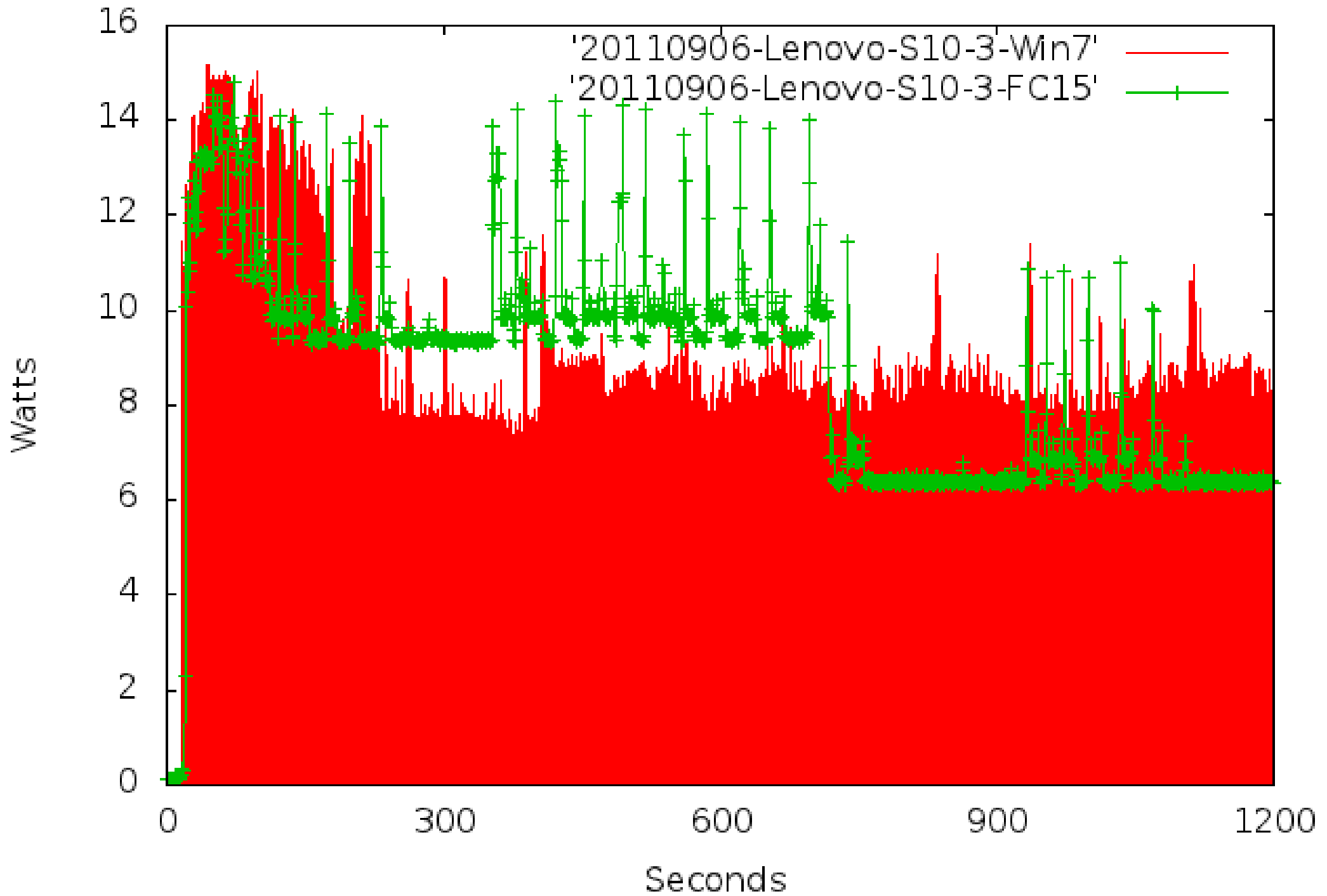
- PM policy settings are not exposed to user
 - User can manually set brightness
 - User can manually suspend/power-off
 - User can **not** customize defaults, or even see them
- PM defaults on AC lag those on DC
 - That is so 1990's...

Lenovo Ideapad S10-3

- 48 Watt-Hour Battery
- N455 @ 1.66GHz
- 1.00 GB RAM
- SATA HDD



Boot/login/20-minutes Idle



Lenovo S10-3

- Win7 on live network is noisy
- Win7 STR works, FC15 STR fails
- Win7 STR after timeout, FC15 does not
- FC15 gnome3 lid close forces STR
 - ie. close the lid w/o poweroff will kill crash system
- FC15 screen off at 10 minutes
 - Hides the fact that bogus “screensaver” still exists
 - Screensavers are so 1980's...