SRI-IPB2 27B CORE RUN SUMMARY

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We have done a few h2 runs on IPB2 27 core. This note is the summary of four runs. The Table 1 through Table 4 list the data from four runs. The Figure 1 through Figure 4 are time series of four runs.

COP calculation is based on “Calorimetry of the IPB System” 9/2/2016. The formula is the below:

COP = (HP drop + m * coreQPower*correctFactor + b) / (coreQPower*correctFactor)

Where HP drop is Heater Power (No QPulse)-Heater Power (with QPulse)

m is slope from DC runs as HP drop/DC power.

b is constant term from DC runs of linear function of HP drop vs. DC power.

coreQPower is Q Pulse power deposited to the core.

correctFactor is determined by calibrating COP to approximately 1.0 with helium runs, since we have no helium runs for this core, we apply 1.0 for all cases.

Table 5 is COP results of four runs. Note: The COP peaks at the temperature of 325c.

Table 1. Run1, 10/04/2016-10/05/2016 H2

	Heater Power(W)				coreQPower(W)		
QpulseWidth(ns)	NQ	150	100	150	150	100	150
Temp							
250	19.09	15.87	15.41	15.73	4.08	4.66	4.09
275	21.88	18.12	17.61	18.09	4.36	4.99	4.37
300	24.77	20.71	20.03	20.64	4.60	5.28	4.60
325	27.89	23.59	22.87	23.54	4.72	5.45	4.71
400	38.15	35.13	35.00	34.96	4.06	4.41	4.06

Table 2. Run4, 10/11/2016-10/12/2016 H2

	Heater Power(W)				coreQPower(W)		
QpulseWidth(ns)	NQ	150	100	150	150	100	150
Temp							
250	19.02	15.89	15.30	15.64	4.19	4.79	4.19
275	21.89	18.02	17.40	17.96	4.45	5.10	4.45
300	24.78	20.65	19.88	20.58	4.67	5.37	4.67
325	27.90	23.56	22.71	23.48	4.77	5.52	4.77
400	38.16	35.16	34.83	34.96	4.10	4.49	4.10

Table 3. Run3, 10/27/2016-10/28/2016 H2

	Heater Power(W)				coreQPower(W)		
QpulseWidth(ns)	NQ	150	100	150	150	100	150
Temp							
150	9.37	8.22	8.07	8.20	2.04	2.32	2.04
200	14.02	12.57	12.33	12.48	2.25	2.54	2.25
250	19.11	17.17	16.90	17.21	2.54	2.87	2.54
300	24.80	22.30	21.96	22.27	2.86	3.29	2.87
350	31.14	29.16	28.81	29.07	2.46	2.80	2.46
400	38.16	36.38	36.24	36.28	2.32	2.56	2.32

Table 4. Run4, 10/29/2016-11/1/2016 H2

	Heater Power(W)				coreQPower(W)		
QpulseWidth(ns)	NQ	300	83.33	300	300	83.33	300
Temp							
250	19.13	16.78	17.44	16.81	2.87	1.92	2.89
275	21.92	19.13	20.12	18.98	3.14	2.04	3.14
300	24.81	21.65	22.80	21.56	3.37	2.13	3.38
325	27.93	24.53	25.83	24.41	3.50	2.19	3.51
350	31.16	28.55	29.36	28.65	2.98	2.04	2.98

Table 5. Run1 - Run4, COP

QpulseWidth(ns)	150	100	150	150	100	150	150	100	150	300	83.33	300
	Run1:COP			Run2:COP			Run3:COP			Run4:COP		
150							0.99	0.98	1.00			
200							1.15	1.16	1.19			
250	1.28	1.28	1.32	1.24	1.27	1.30	1.27	1.27	1.25	1.32	1.39	1.30
275	1.37	1.36	1.38	1.38	1.39	1.39				1.40	1.41	1.45
300	1.42	1.43	1.43	1.42	1.44	1.43	1.42	1.41	1.43	1.48	1.51	1.50
325	1.46	1.47	1.47	1.46	1.48	1.47				1.53	1.54	1.56
350							1.34	1.37	1.38	1.42	1.42	1.38
400	1.33	1.30	1.37	1.32	1.32	1.36	1.37	1.35	1.41			

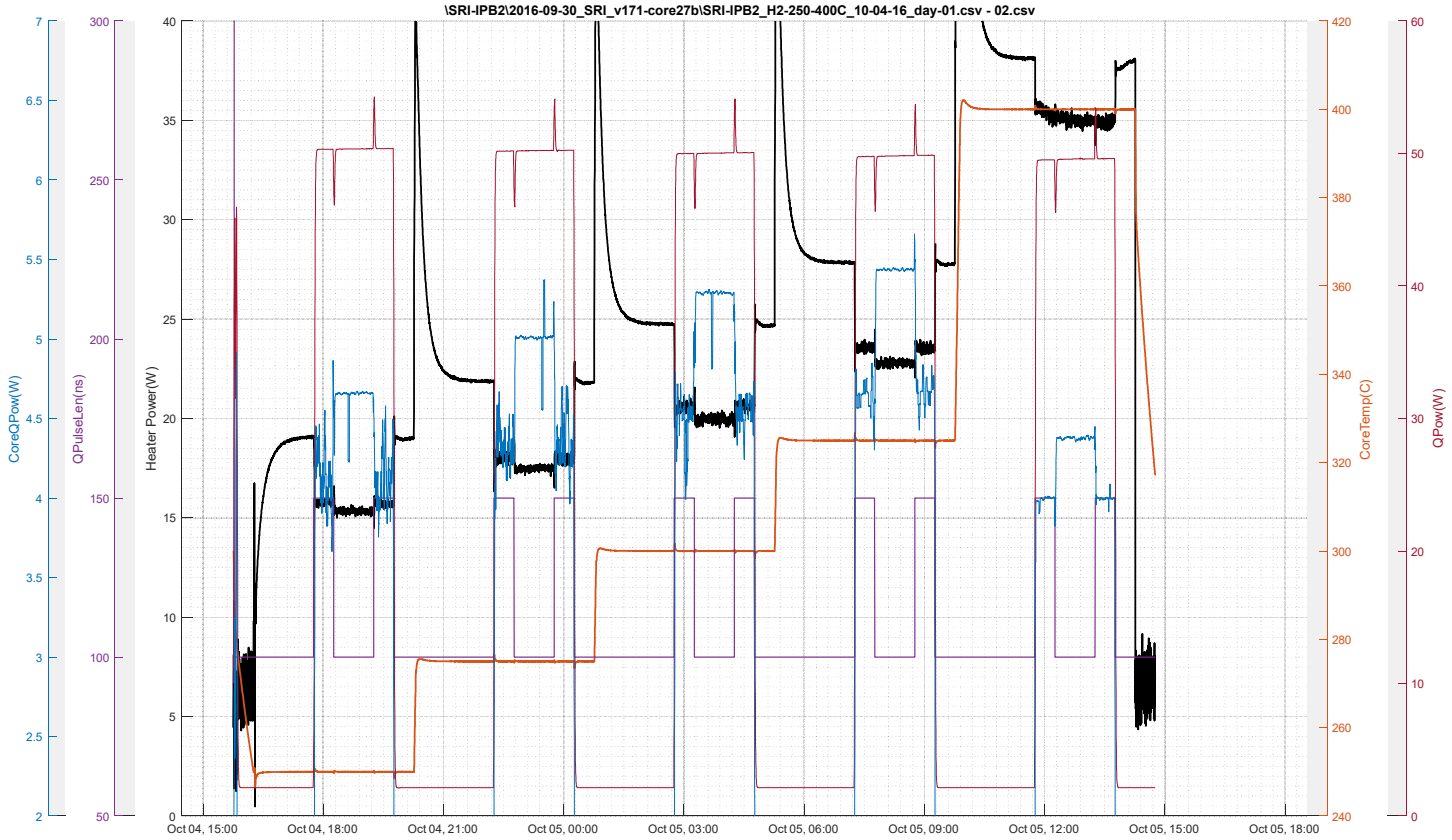

Figure 1. Run1 H2

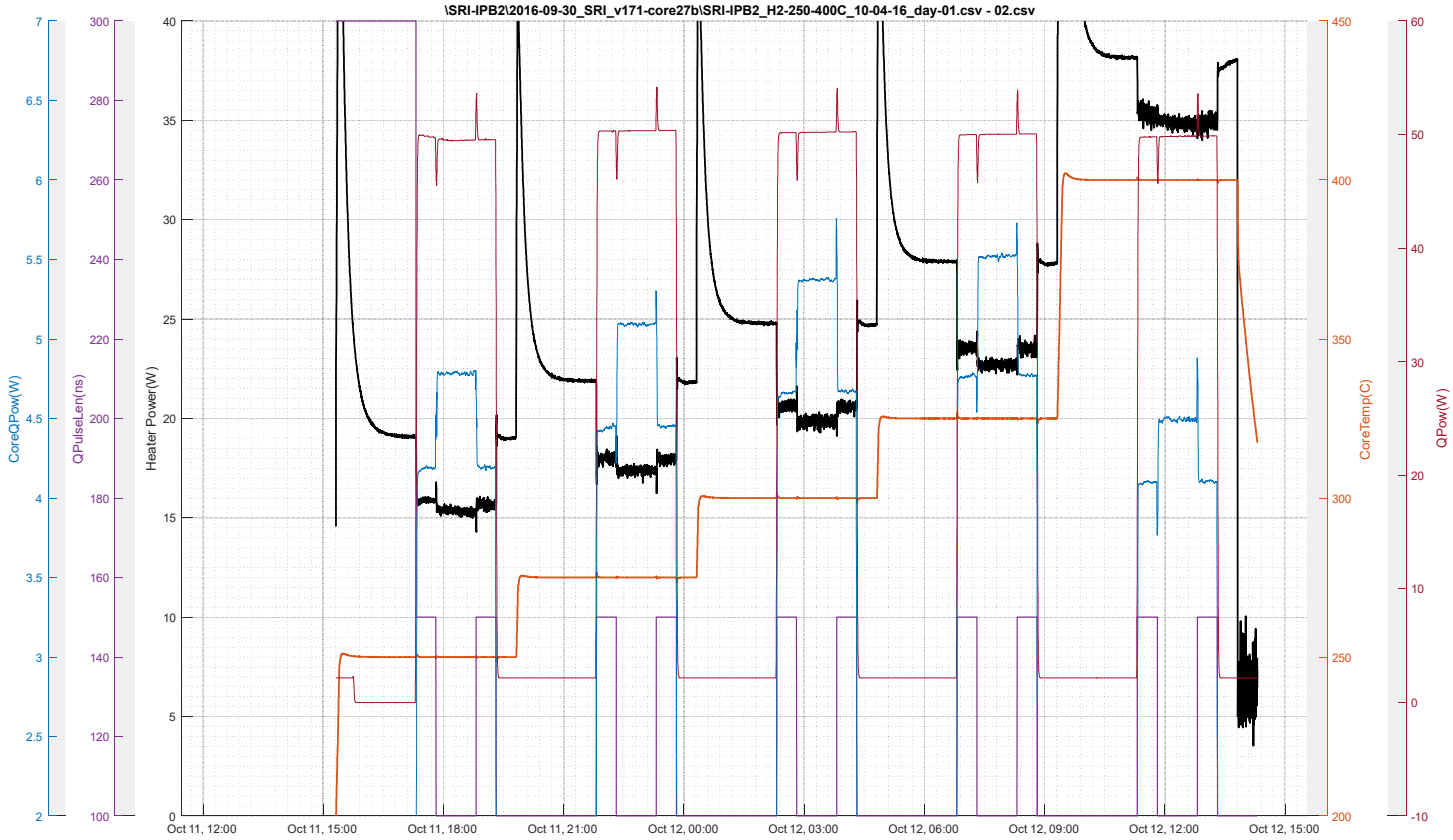

Figure 2. Run2 H2

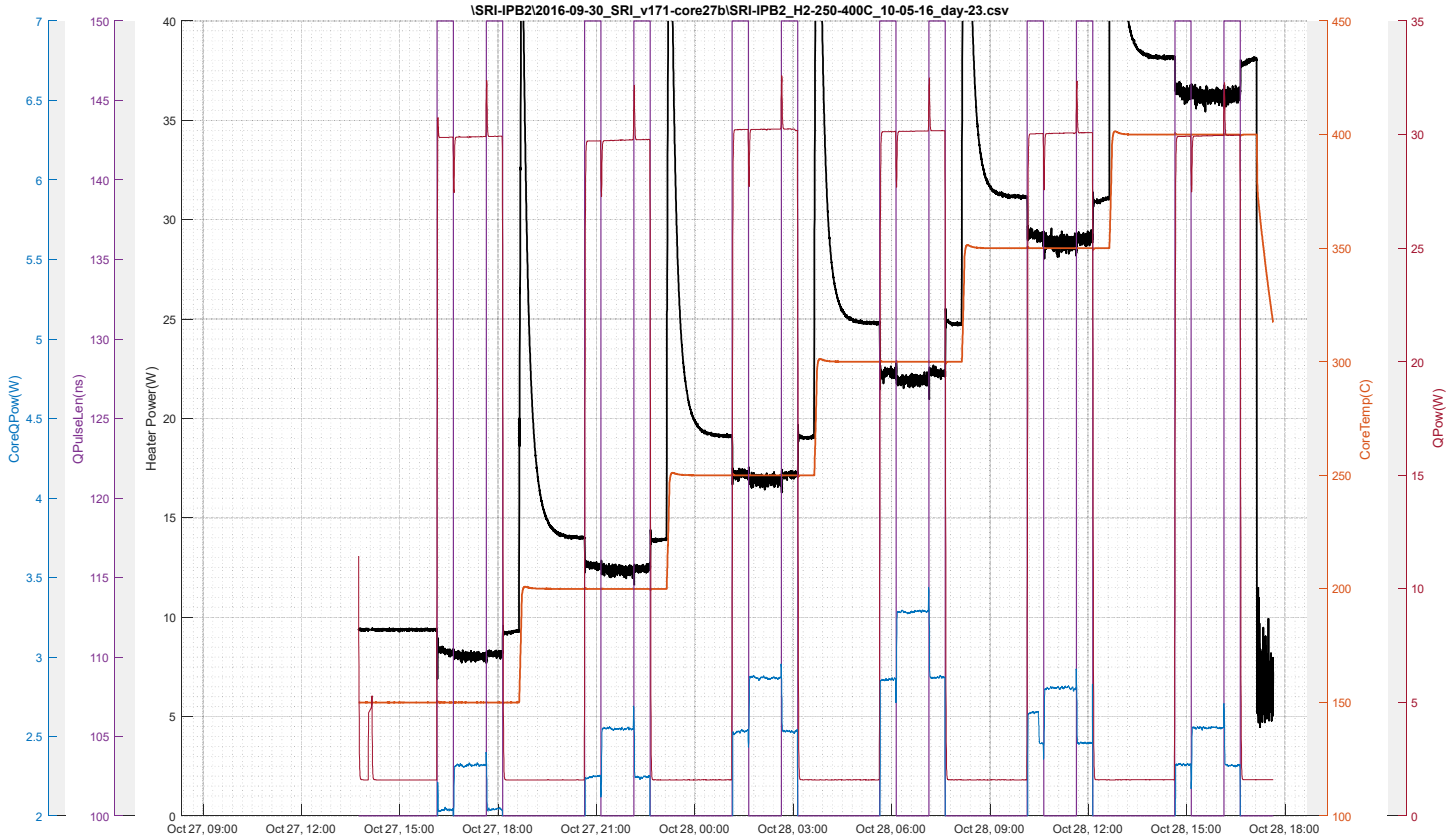

Figure 3. Run3 H2

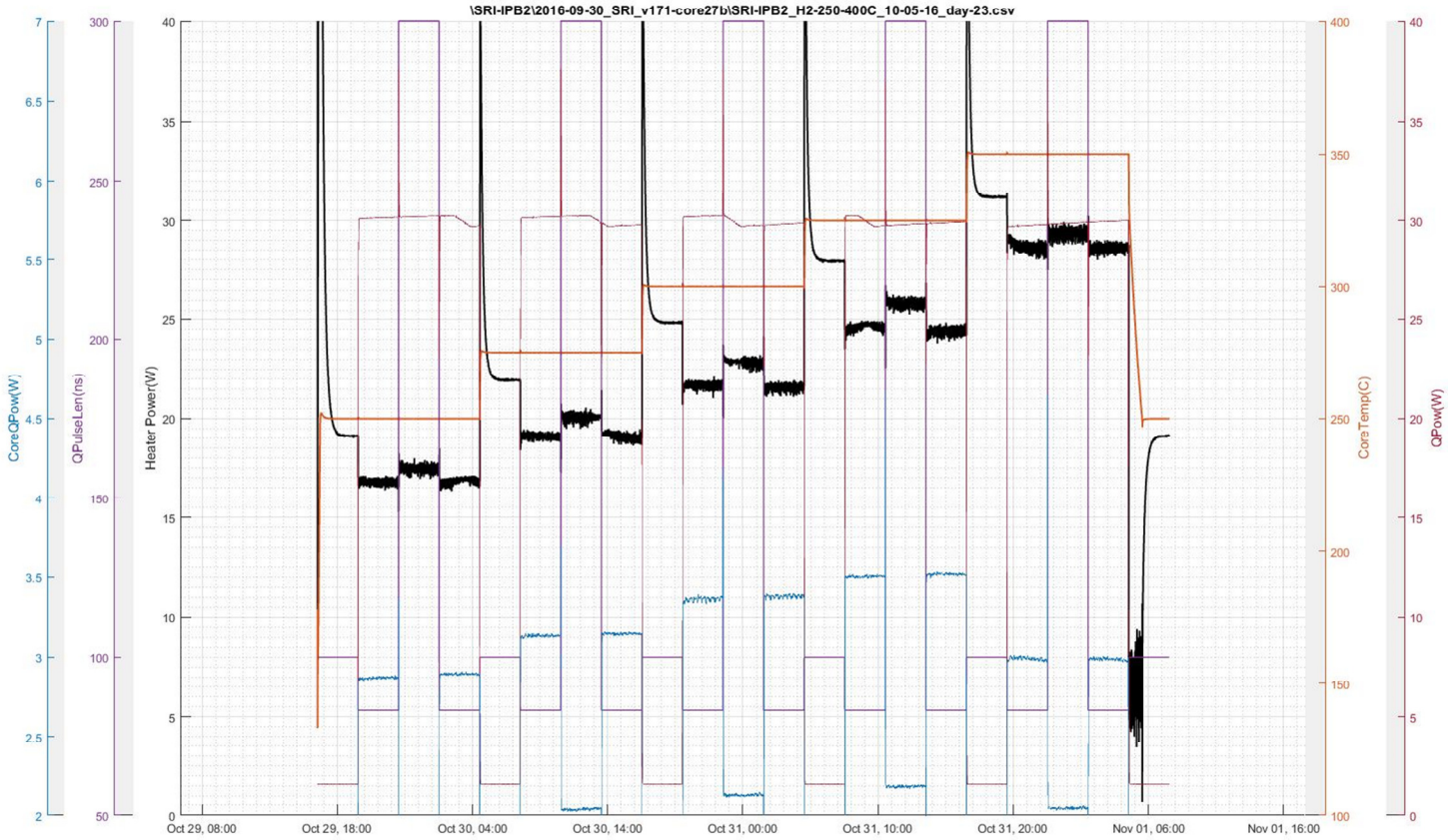

Figure 4. Run4 H2