Experiment #1
Flow version: 2024.10 pre
--matrix-add-well-contributions = false
--threads-per-process = 1
GPU → --accelerator-mode = rocsparse

Simulation Time				
CASE	CPU		GPU	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013	460.32	369.01	462.49	2317.64
NORNE_ATW2013_1A_STDW	281.81	193.43	222.67	1005.47
NORNE_ATW2013_1A_MSW	1259.88	884.7	886.53	10753.78

Apply Time				
CASE	CPU		GPU	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013	3.75885	1.48474	2.88678855	24.18425339
NORNE_ATW2013_1A_STDW	2.34652	0.67926	2.34703454	11.21947114
NORNE_ATW2013_1A_MSW	19.67701	7.16545		9.64544

Apply Number of Calls				
CASE	CPU		GPU	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013	1105434	396496	73635	889929
NORNE_ATW2013_1A_STDW	451377	121351	53426	339125
NORNE_ATW2013_1A_MSW	1664226	572740		745944

Well Rate Calculation Time				
CASE	CPU		GPU	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013	2.42219	2.10769	2.74193	2.13144
NORNE_ATW2013_1A_STDW	1.02467	1.12007	1.04844	1.12786
NORNE_ATW2013_1A_MSW	15.98884	11.61665	10.70283	20.16526

computePerfRate Time				
CASE	CPU		GPU	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013	4.9	4.26153	5.52331	4.28733
NORNE_ATW2013_1A_STDW	2.08871	2.26381	2.12007	2.27549
NORNE_ATW2013_1A_MSW	37.30806	27.07497	24.9399	47.06084

Experiment #2

Flow version: 2024.10 pre --accelerator-mode = none --threads-per-process = 1

Simulation Time						
CASE	TRUE		FALSE		difference	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013_1A_STDW	236.38	115.38	235.88	166.83	-0.21	30.84
NORNE_ATW2013_1A_MSW	957.89	727.7	1203.18	846.21	20.39	14.00
NORNE_ATW2013_2A_STDW	631.41	369.65	634.67	395.85	0.51	6.62
NORNE_ATW2013_2A_MSW	531.21	294.47	527.12	302.59	-0.78	2.68
NORNE_ATW2013_2B_STDW	1016.63	630.73	626.13	-1	-62.37	
NORNE_ATW2013_2B_MSW	542.52	301.85	739.98	334.83	26.68	9.85
NORNE_ATW2013_3B_STDW	548.27	394.71	561.64	427.82	2.38	7.74
NORNE_ATW2013_3B_MSW	382.11	253.45	400.95	255.88	4.70	0.95
NORNE_ATW2013_3C_STDW	547.32	384.78	556.34	417.63	1.62	7.87
NORNE_ATW2013_3C_MSW	399.46	246.58	401.75	256.25	0.57	3.77
NORNE_ATW2013_4B_STDW	-1	-1	-1	-1		
NORNE_ATW2013_4B_MSW	916.58	468.57	665.59	621.92	-37.71	24.66
NORNE_ATW2013_4C_STDW	-1	-1	-1	-1		
NORNE_ATW2013_4C_MSW	829.37	517.09	674.61	543.49	-22.94	4.86

Well Rate Calculation Time						
CASE	TRUE		FALSE		difference	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013_1A_STDW	0.73816	0.53487	0.72893	0.78319	-1.27	31.71
NORNE_ATW2013_1A_MSW	12.34318	10.24136	15.89046	11.54339	22.32	11.28
NORNE_ATW2013_2A_STDW	30.27007	24.5943	30.23048	24.60822	-0.13	0.06
NORNE_ATW2013_2A_MSW	2.16817	2.06082	2.04604	1.84583	-5.97	-11.65
NORNE_ATW2013_2B_STDW	44.84009	37.68727	35.08649	-1	-27.80	
NORNE_ATW2013_2B_MSW	2.7729	2.16915	7.06408	2.60232	60.75	16.65
NORNE_ATW2013_3B_STDW	27.01089	26.1908	27.15103	25.99466	0.52	-0.75
NORNE_ATW2013_3B_MSW	1.58898	1.4061	1.61051	1.37836	1.34	-2.01
NORNE_ATW2013_3C_STDW	26.12393	25.12706	26.06932	25.03868	-0.21	-0.35
NORNE_ATW2013_3C_MSW	1.64138	1.36943	1.62272	1.36594	-1.15	-0.26
NORNE_ATW2013_4B_STDW	-1	-1	-1	-1	0.00	
NORNE_ATW2013_4B_MSW	9.47104	4.74043	4.958	7.43754	-91.03	36.26
NORNE_ATW2013_4C_STDW	-1	-1	-1	-1	0.00	
NORNE_ATW2013_4C_MSW	7.93004	5.67915	5.06219	6.56736	-56.65	13.52

computePerfRate Time						
CASE	TRUE		FALSE		difference	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013_1A_STDW	1.77302	1.28477	1.75276	1.89261	-1.16	32.12
NORNE_ATW2013_1A_MSW	28.78049	23.92591	37.09257	26.91456	22.41	11.10
NORNE_ATW2013_2A_STDW	74.21834	60.21789	74.04197	60.31411	-0.24	0.16
NORNE_ATW2013_2A_MSW	5.05028	4.80888	4.77578	4.31532	-5.75	-11.44
NORNE_ATW2013_2B_STDW	109.87318	92.33439	85.92915	-1	-27.86	
NORNE_ATW2013_2B_MSW	6.46217	5.07505	16.49363	6.05703	60.82	16.21
NORNE_ATW2013_3B_STDW	66.04044	64.14372	66.46662	63.70002	0.64	-0.70
NORNE_ATW2013_3B_MSW	3.70081	3.27977	3.76096	3.21547	1.60	-2.00
NORNE_ATW2013_3C_STDW	63.89072	61.56199	63.80736	61.35703	-0.13	-0.33
NORNE_ATW2013_3C_MSW	3.82573	3.18065	3.78917	3.18528	-0.96	0.15
NORNE_ATW2013_4B_STDW	-1	-1	-1	-1	0.00	
NORNE_ATW2013_4B_MSW	22.08705	11.05635	11.55087	17.32915	-91.22	36.20
NORNE_ATW2013_4C_STDW	-1	-1	-1	-1	0.00	
NORNE_ATW2013_4C_MSW	18.50847	13.25306	11.78018	15.30847	-57.12	13.43

Percentage of computePerfRate time in Simulation time				
CASE	TRUE		FALSE	
	ILU0	cpr_quasiimpes	ILU0	cpr_quasiimpes
NORNE_ATW2013_1A_STDW	0.750	1.114	0.743	1.134
NORNE_ATW2013_1A_MSW	3.005	3.288	3.083	3.181
NORNE_ATW2013_2A_STDW	11.754	16.291	11.666	15.237
NORNE_ATW2013_2A_MSW	0.951	1.633	0.906	1.426
NORNE_ATW2013_2B_STDW	10.808	14.639	13.724	
NORNE_ATW2013_2B_MSW	1.191	1.681	2.229	1.809
NORNE_ATW2013_3B_STDW	12.045	16.251	11.834	14.889
NORNE_ATW2013_3B_MSW	0.969	1.294	0.938	1.257
NORNE_ATW2013_3C_STDW	11.673	15.999	11.469	14.692
NORNE_ATW2013_3C_MSW	0.958	1.290	0.943	1.243
NORNE_ATW2013_4B_STDW				
NORNE_ATW2013_4B_MSW	2.410	2.360	1.735	2.786
NORNE_ATW2013_4C_STDW				
NORNE_ATW2013_4C_MSW	2.232	2.563	1.746	2.817

Experiment #3
--linear-solver=ilu0 --threads-per-process = 1 GPU → --accelerator-mode = rocsparse TRUE → --matrix-add-well-contributions = true; FALSE → --matrix-add-well-contributions = false

		Simulation Time			Apply Time	
CASE	Processor	TRUE	FALSE	difference	FALSE	Percentage
NORNE_ATW2013_1A_MSW	GPU	1011.66	871.82	-16.04		0.00
NORNE_ATW2013_1A_MSW	CPU	937.51	1237.81	24.26	19.25472	1.56
NORNE_ATW2013_1A_STDW	GPU	218.2	226.71	3.75	2.3945913	1.06
NORNE_ATW2013_1A_STDW	CPU	234.73	241.89	2.96	1.98087	0.82
NORNE_ATW2013_2A_MSW	GPU	481.38	510.85	5.77		0.00
NORNE_ATW2013_2A_MSW	CPU	526.27	539.64	2.48	5.91206	1.10
NORNE_ATW2013_2A_STDW	GPU	578.3	603.34	4.15	4.84064258	0.80
NORNE_ATW2013_2A_STDW	CPU	618.38	639.62	3.32	4.562	0.71
NORNE_ATW2013_2B_MSW	GPU	472.05	493.34	4.32		0.00
NORNE_ATW2013_2B_MSW	CPU	524.81	752.1	30.22	6.33435	0.84
NORNE_ATW2013_2B_STDW	GPU	942.33	569.09	-65.59	4.56883935	0.80
NORNE_ATW2013_2B_STDW	CPU	1008.38	628.63	-60.41	3.861	0.61
NORNE_ATW2013_3B_MSW	GPU	368.91	386.21	4.48		0.00
NORNE_ATW2013_3B_MSW	CPU	381.92	402.23	5.05	5.55181	1.38
NORNE_ATW2013_3B_STDW	GPU	528.18	524.7	-0.66	4.13636038	0.79
NORNE_ATW2013_3B_STDW	CPU	551.97	566.96	2.64	4.01996	0.71
NORNE_ATW2013_3C_MSW	GPU	359.22	378.16	5.01		0.00
NORNE_ATW2013_3C_MSW	CPU	394.93	406.31	2.80	5.48382	1.35
NORNE_ATW2013_3C_STDW	GPU	513.09	523.52	1.99	4.13142443	0.79
NORNE_ATW2013_3C_STDW	CPU	542.68	554.88	2.20	3.78478	0.68

Experiment #4
Flow version: 2024.10 pre
--linear-solver=ilu0
--threads-per-process = 1
GPU → --accelerator-mode = rocsparse
TRUE → --matrix-add-well-contributions = true; FALSE → --matrix-add-well-contributions = false

CASE	Processor	Simulation Time			Apply Time		Data Transfer Time	
		TRUE	FALSE	difference	FALSE	Percentage	FALSE	Percentage
NORNE_ATW2013_1A_MSW	GPU	1044.55	864.72	-20.80	11.90674	1.38	211.9796	24.51424739
NORNE_ATW2013_1A_MSW	CPU	958.61	1220.13	21.43	19.36718	1.59		0
NORNE_ATW2013_1A_STDW	GPU	219.91	222	0.94	2.36034851	1.06		0
NORNE_ATW2013_1A_STDW	CPU	235.1	237.44	0.99	2.01221	0.85		0
NORNE_ATW2013_2A_MSW	GPU	487.88	505.11	3.41	4.79187	0.95	176.61359	34.9653719
NORNE_ATW2013_2A_MSW	CPU	528.97	530.03	0.20	5.91581	1.12		0
NORNE_ATW2013_2A_STDW	GPU	585.82	602.14	2.71	4.82475251	0.80		0
NORNE_ATW2013_2A_STDW	CPU	627.06	637.23	1.60	4.64565	0.73		0
NORNE_ATW2013_2B_MSW	GPU	467.62	486.6	3.90	4.0003	0.82	168.84321	34.6985635
NORNE_ATW2013_2B_MSW	CPU	542.98	750.95	27.69	6.33105	0.84		0
NORNE_ATW2013_2B_STDW	GPU	958.96	566.58	-69.25	4.47798244	0.79		0
NORNE_ATW2013_2B_STDW	CPU	1007.8	624.14	-61.47	3.91054	0.63		0
NORNE_ATW2013_3B_MSW	GPU	364.62	380.93	4.28	4.43599	1.16	113.81643	29.87856824
NORNE_ATW2013_3B_MSW	CPU	384.99	397.56	3.16	5.42068	1.36		0
NORNE_ATW2013_3B_STDW	GPU	523.71	530.17	1.22	4.09509052	0.77		0
NORNE_ATW2013_3B_STDW	CPU	553.06	561.75	1.55	3.91134	0.70		0
NORNE_ATW2013_3C_MSW	GPU	361.77	366.83	1.38	4.44649	1.21	113.25565	30.87415151
NORNE_ATW2013_3C_MSW	CPU	399.29	401.87	0.64	5.47244	1.36		0
NORNE_ATW2013_3C_STDW	GPU	505.99	520.12	2.72	4.04742224	0.78		0
NORNE_ATW2013_3C_STDW	CPU	544.06	556.46	2.23	3.76197	0.68		0

CASE	Processor	Simulation Time			Apply Time		Data Transfer Time	
		TRUE	FALSE	Difference (%)	FALSE	Percentage	FALSE	Percentage
NORNE_ATW2013_1A_MSW	GPU	1044.55	864.72	-20.80	11.91	1.38	211.98	24.51
NORNE_ATW2013_2A_MSW	GPU	487.88	505.11	3.41	4.79	0.95	176.61	34.97
NORNE_ATW2013_2B_MSW	GPU	467.62	486.6	3.90	4.00	0.82	168.84	34.70
NORNE_ATW2013_3B_MSW	GPU	364.62	380.93	4.28	4.44	1.16	113.82	29.88
NORNE_ATW2013_3C_MSW	GPU	361.77	366.83	1.38	4.45	1.21	113.26	30.87