

Features of DAPL Dependent on DAP Model

This listing covers the following models:

DAP 840/103	DAP 3000a/212	DAP 3200a/415
DAP 3216a/415	DAP 4000a/112	DAP 4000a/212
DAP 4200a/526	DAP 4400a/446	DAP 5000a/526
DAP 5016a/527	DAP 5200a/526	DAP 5200a/626
DAP 5216a/626	DAP 5216a/627	DAP 5380a/526
DAP 5400a/627	iDSC 1816/0	

1 Input Sampling Analog Voltage Range

DAP models not included in the table below support all listed input voltage ranges. Range is software programmable for the iDSC 1816 and DAP 5400a/627, jumper programmable for other models. Input ranges are reduced at gains higher than 1.0.

Model	0 to +5	-2.5 to +2.5	-5 to +5	-10 to +10
DAP 3216a/415			x	x
DAP 4400a/446		x	x	x
DAP 5000a/526			x	x
DAP 5016a/527			x	x
DAP 5216a/627			x	x
DAP 5380a/526			x	x
DAP 5400a/627			x	x
iDSC 1816			x	x

2 Input Converter Precision

16 bits, no padding	DAP 3216a/415, DAP 5216a/626, DAP 5216a/627 DAP 5016a/527, iDSC 1816
12 bits, 4 padding bits applied	DAP 3000a/212, DAP 3200a/415
14 bits, 2 padding bits applied	all other models

3 Differential Analog Inputs (SET)

Supported on all models except:

DAP 4400a/446, DAP 5380a/526, DAP 5400a/627, and iDSC 1816

4Analog Gain

gain 1 only	DAP 4400a/446, DAP 5380a/526, DAP 5400a/627, and iDSC 1816
1, 4, 10, 40	DAP 5000a/526, DAP 5016a/527, DAP 5216a/627,
1, 10, 100, 500	all other models

5Simultaneous Sampling Group Size (**GROUPSIZE**)

fixed 4-channel group size	DAP 4400a/446
adjustable 4- or 8-channel group size	DAP 5380a/526, DAP 5400a/627
multiplexed single-channel sampling	all other models

6Sampling Group Pin Mapping

DAP 4400a/446 Group of 4	DAP 5380a/526 DAP 5400a/627 Group of 4	DAP 5380a/526 DAP 5400a/627 Group of 8
SPG0: S0,S4,S8,S12	SPG0: S0,S2,S4,S6	SPG0: S0,S2,S4,S6,S8,S10,S12,S14
SPG1: S1,S5,S9,S13	SPG1: S1,S3,S5,S7	SPG1: S1,S3,S5,S7,S9,S11,S13,S15
SPG2: S2,S6,S10,S14	SPG2: S8,S10,S12,S14	SPG2: S16,S18,S20,S22,S24,S26,S28,S30
SPG3: S3,S7,S11,S15	SPG3: S9,S11,S13,S15	SPG3: S17,S19,S21,S23,S25,S27,S29,S31
SPG4: S16,S20,S24,S28	SPG4: S16,S18,S20,S22	SPG4: S32,S34,S36,S38,S40,S42,S44,S46
SPG5: S17,S21,S25,S29	SPG5: S17,S19,S21,S23	SPG5: S33,S35,S37,S39,S41,S43,S45,S47
...

7Input Sample Channel Remapping (**OPTIONS AINEXPAND**)

Available for all models except:

DAP 5380a/526, DAP 5400a/627, and iDSC 1816

The **AINEXPAND** option applies to MSXB 018 input expansion boards. Check the hardware manuals for signal mappings on other expansion boards.

8Number of Analog Input Signal Pins

8 (no expansion)	DAP 840/103, iDSC 1816
16 (no expansion)	DAP 4000a/112
16 (expandable to 512)	all other models

9Output Updating (**ODEFINE, DACOUT, DIGITALOUT**)

Analog and digital output updating are supported on all models except:

DAP 4400a/446, DAP 5380a/526, DAP 5400a/627, iDSC 1816

10 Analog Output Converter Precision

16 bits,	DAP 3216a/415, DAP 5016a/527, DAP 5216a/626, DAP 5216a/627
12 bits, (4 padding bits stripped)	all other models supporting analog output updating

11 Number of Analog Output Signal Pins

2, expandable to 66 for models supporting analog output expansion

12 Number of Digital Output Pins

8 (one port), not expandable for DAP 840a/103

16 (one port), expandable to 1024 (64 ports), for all other models supporting digital outputs

13 Input Channel List Size (CHANNELS , GROUPS)

The total number of channels defined by SET commands cannot exceed this limit. Channels can be single channels, or grouped channels, depending on the DAP model. For differential operation, each channel uses two hardware lines, so the maximum channel list length can exceed the number of distinct differential hardware channels.

1024	DAP 4200a/526, DAP 5000a/526, DAP 5016a/527, DAP 5200a/626, DAP 5216a/626, DAP 5216a/627, DAP 5380a/526, DAP 5400a/627
512	all other models

14 Analog Input Expansion (SET)

Supported on all models except:

DAP 4000a/112, DAP 840/103, and iDSC 1816

Sampling rate reductions are necessary for some models when used in combination with analog expansion boards.

15 Digital Input Sampling (SET)

Supported on all models except:

DAP 4400a/446, DAP 5380a/526, DAP 5400a/627, and iDSC 1816

16 Fast Mixed Analog and Digital Sampling (SET)

Supported on all models that support clocked digital sampling

17 Sampling Interval (TIME)

Units are microseconds.

Model	Minimum, analog	Minimum, digital	Increment	Maximum
DAP 840/103	1.25	1.25	0.050	52428
DAP 3000a/212	1.30	0.60	0.100	13107
DAP 3200a/415	1.30	0.60	0.100	104856
DAP 3216a/415	5.00	0.60	0.100	104856
DAP 4000a/112	1.25	1.25	0.050	52428
DAP 4000a/212	1.25	1.25	0.050	52428
DAP 4200a/526	1.30	0.60	0.100	104856
DAP 4400a/446	1.25	-----	0.050	52428
DAP 5000a/526	1.25	0.60	0.050	10000
DAP 5200a/526	1.25	0.60	0.050	52428
DAP 5200a/626	1.25	0.60	0.050	52428
DAP 5016a/527	2.00	0.60	0.050	10000
DAP 5216a/626	3.00	0.60	0.050	52428
DAP 5216a/627	2.00	0.50	0.050	10000
DAP 5380a/526 4-channel mode	1.24	-----	0.020	10000
DAP 5380a/526 8-channel mode	1.60	-----	0.020	10000
DAP 5400a/627 4-channel mode	0.50	-----	0.020	83884
DAP 5400a/627 8-channel mode	0.80	-----	0.020	83884

18 Updating Interval (TIME)

Units are microseconds.

Model	Minimum, analog	Minimum, digital	Increment	Maximum
DAP 840/103	2.50	1.25	0.050	52428
DAP 3000a/212	1.20	0.60	0.100	13107
DAP 3200a/415	1.20	0.60	0.100	104856
DAP 3216a/415	2.00	0.60	0.100	104856
DAP 4000a/112	2.50	1.25	0.050	52428
DAP 4000a/212	2.50	1.25	0.050	52428
DAP 4200a/526	1.20	0.60	0.100	104856
DAP 5000a/526	1.25	0.60	0.050	10000
DAP 5200a/626	1.20	0.60	0.050	52428
DAP 5016a/527	2.00	0.60	0.050	10000
DAP 5216a/626	2.50	0.60	0.050	52428
DAP 5216a/627	2.00	0.50	0.050	10000

19 Unipolar Analog Output Mode (OUTPUT)

Available for all models that support analog output updating except:

DAP 3216a/415, DAP 5000a/526, DAP 5016a/527,
DAP 5216a/626, DAP 5216a/627

20 Accessory Restrictions

No input expansion (SET)

DAP 840/103, DAP 4000a/112

No output expansion (SET)

DAP 840/103, DAP 4400a/446, DAP 5380a/526, DAP 5400a/627

No digital accessory cards (SET, CTCOUNT, CTRATE)

DAP 840/103, iDSC 1816, DAP 4400a/446, DAP 5380a/526, DAP 5400a/627

21 Scheduling Quantum Minimum (OPTION QUANTUM)

Units are in microseconds.

100 DAP 3200a/415, DAP 3216/415, DAP 4200a/526, DAP 4400a/446, DAP 5000a/526, DAP 5016a/527, DAP 5200a/626, DAP 5216a/626, DAP 5216a/627, DAP 5380a/526, DAP 5400a/627, iDSC 1816

200 all other models

22 Main Processor

<u>CPU Type</u>	<u>Features</u>	<u>DAP Models</u>
486SLXC2	2-way limited cache, efficient data movement, basic integer processing at moderate rates	DAP840a/103 DAP4000a/112 DAP4000a/212
i486DX4	4-way cache, efficient data movement, hardware floating point, basic processing and DSP at moderate rates	DAP4200a/526 DAP4400a/446 iDSC1816
Intel Pentium 233	dual code and data caches, efficient high-rate data transfers, hardware floating point, control processing and complex DSP at moderate rates	DAP5000a/526 DAP5016a/527 DAP5380a/526
AMD K6 III	dual code and data caches plus large secondary cache, high-rate data transfers, fast hardware floating point, advanced processing and DSP for multi-channel applications at high data rates.	DAP5200a/526 DAP5200a/626 DAP5216a/626 DAP5216a/627 DAP5400a/626 DAP5400a/627

23 DAPL Loadable Binary Image

The installer for Windows systems selects a downloadable DAPL image automatically. Users of Linux systems must specify the binary image for downloading, as listed in the following table.

DAP840/103	DV-103.ST2	DAP4000a/102	DT-112A.ST2
DAP4000a/212	DT-212A.ST2	DAP4200a/526	DP-526A.ST2
DAP4400a/446	DS-446A.ST2	DAP5200a/526	DR-526A.ST2
DAP5200a/626	DR-626A.ST2	DAP5216a/626	DW-626A.ST2
DAP5216a/627	DW-627A.ST2	DAP5400a/626	DX-626A.ST2
DAP5400a/627	DX-627A.ST2	DAP5000a/526	DY-526A.ST2
DAP5016a/527	DZ-527A.ST2	DAP5216a/627	DW-627A.ST2
DAP5380a/526	DX-526A.ST2	iDSC1816/0	DU-0.ST2

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