

## SA-Adapter Option Matrix

On many MEN boards, SA-Adapter I/O functions are FPGA-controlled. Depending on the resources required by the single FPGA IP cores, **not all combinations** of IP cores in all kinds of instances are possible. However, to get a first idea of what's possible and what's not, you can summarize the resources of the IP cores (LEs = logic elements). Then compare the sum with the maximum available number of LEs of your carrier board. Please also consider the **maximum number of SA-Adapters** on your carrier board (see following pages).

SA-Adapter	Function	Isolation	Product Version	Required IP Core <sup>1)</sup>	Required Software Driver <sup>1)</sup>				Comment	IP Resources (LEs)
					Windows	Linux	VxWorks	QNX		
<b>SA1</b>	Serial RS232	No	08SA01-00	16Z025_UART or 16Z125_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
<b>SA2</b>	Serial RS422 (Full duplex)	Yes	08SA02-01 or 08SA02-07	16Z025_UART or 16Z125_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
	Serial RS485 (Half duplex)	Yes	08SA02-00 or 08SA02-09	16Z025_UART or 16Z125_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
	HDLC	Yes	08SA02-01 or 08SA02-07	16Z055_HDLC	-	13Z055-90	-	13Z055-40	Native	1050
<b>SA3</b>	Serial RS232	Yes	08SA03-00 or 08SA03-01	16Z025_UART or 16Z125_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
<b>SA8</b>	CAN bus	Yes	08SA08-00 or 08SA08-01	16Z029_CAN	13Z015-70	13Z015-06	13Z015-06	13Z015-06	MDIS (MSCAN)	2000
					13Z016-70	13Z016-06	13Z016-06	13Z016-06	MDIS (CANopen)	
<b>SA15</b>	Binary I/O	Yes	08SA15-00	16Z037_GPIO	13Z017-70	13Z017-06	13Z017-06	13Z017-06	MDIS	130 .. 850 (8..64 I/Os)
<b>SA22</b>	IBIS Master	Yes	08SA22-00	16Z025_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
	IBIS Slave	Yes	08SA22-01	16Z025_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
<b>SA24M<sup>2)</sup></b>	IBIS Master	Yes	08SA24M00 or 08SA24M01	16Z025_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800
<b>SA25</b>	GPS	Yes	08SA25-00	16Z025_UART or 16Z125_UART	Windows Standard Driver	13Z025-90	13Z025-60	13Z025-40	Native	1800

1) Only if carrier board is FPGA-based

2) Successor of SA22 IBIS Master

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Carrier	IP Resources (LEs) in FPGA	Necessary Side Board/ Extension Card	Maximum number of possible SA-Adapters	Compatible SA-Adapters								
				SA1	SA2	SA3	SA8	SA15	SA22	SA24M	SA25	
A12B	-	AD67	3	✓	✓					✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
A14C	12 060	-	4	✓	✓					✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
A15B	-	AD67	3	✓	✓					✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
A15C	-	AD67	3	✓	✓					✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
AD67	-	-	3	✓	✓	✓				✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
AE51	-	-	2	✓		✓	✓			✓	✓	✓
B11	-	-	2	✓	✓					✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
BC50F	-	-	1	✓	✓	✓			✓	✓	✓	✓
BC50I	-	-	2	✓	✓	✓			✓	✓	✓	✓
BC50M	-	-	2	✓	✓	✓	✓			✓	✓	✓
BL50S	-	-	2	✓	✓	✓	✓	✓	✓	✓	✓	✓
BL50W	-	-	3	✓	✓	✓	✓	✓				
BL70S	-	-	2	✓	✓	✓	✓	✓	✓	✓	✓	✓
BL70W	-	-	3	✓	✓	✓	✓	✓				
D9	-	CT7	4	✓	✓ <sup>2)</sup>	✓				✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
DC2	-	-	1	✓	✓					✓	✓	✓
F11S	119 088	-	3	✓	✓		✓	✓		✓	✓	✓
F12N	18 752	-	3	✓	✓		✓			✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
F15	-	F600, F601, F602, F606, F608	4	✓	✓	✓				✓	✓	✓
F17	-	F600, F601, F602, F606, F608	4	✓	✓	✓				✓	✓	✓
F19P	-	F600, F601, F606, F608	4	✓	✓	✓				✓	✓	✓

<sup>2)</sup> Only product versions 08SA02-01 or 08SA02-07

<sup>3)</sup> This combination is not yet tested but theoretically possible

**Compare Chart**

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Carrier	IP Resources (LEs) in FPGA	Necessary Side Board/ Extension Card	Maximum number of possible SA-Adapters	Compatible SA-Adapters								
				SA1	SA2	SA3	SA8	SA15	SA22	SA24M	SA25	
<b>F21P</b>	-	F600, F601, F606, F608	4	✓	✓	✓				✓	✓	✓
<b>F22P</b>	-	F600, F601, F606, F608	4	✓	✓	✓				✓	✓	
<b>F23P</b>	-	F600, F601, F606, F608	4	✓	✓	✓				✓	✓	
<b>F206</b>	12 060	-	8	✓	✓	✓	✓	✓	✓	✓	✓	
<b>F206N</b>	12 060	-	8	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>F210</b>	18 752	-	5	✓	✓	✓				✓	✓	✓
<b>F215</b>	39 600	-	8	✓	✓	✓	✓	✓	✓	✓	✓	
<b>F218</b>	39 600	-	3	✓	✓	✓				✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
<b>G215</b>	29 440	-	8	✓	✓	✓	✓	✓	✓	✓	✓	
<b>F600</b>	-	-	4	✓	✓ <sup>2)</sup>	✓				✓	✓	✓
<b>F601</b>	-	-	1	✓	✓ <sup>2)</sup>	✓				✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
<b>F602</b>	-	-	1	✓	✓ <sup>2)</sup>	✓				✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>
<b>F606</b>	-	-	2	✓	✓ <sup>2)</sup>	✓				✓	✓	✓
<b>F608</b>	-	-	2	✓	✓ <sup>2)</sup>	✓				✓	✓	✓
<b>MH50C</b>		F215	8	✓	✓	✓	✓	✓	✓	✓	✓	
<b>MH70I</b>	39 600	F215	8	✓	✓	✓	✓	✓	✓	✓	✓	

2) Only product versions 08SA02-01 or 08SA02-07

3) This combination is not yet tested but theoretically possible

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