

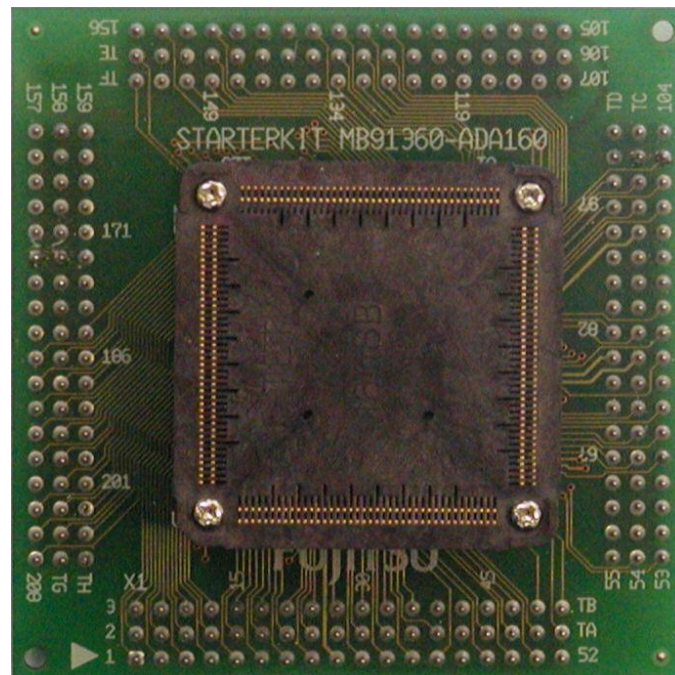
# MB91360 SERIES

## STARTERKIT ADAPTER

# STARTERKITMB91360-ADA160

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## USER GUIDE



## Revision History

Date	Issue
22/01/2003	Ver. 1.0 Initial version
06/02/2003	Ver. 1.1 Typos corrected

This document contains 15 pages.

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## 0 Introduction

The Starterkit91360 is the Evaluation board for MB91360 series.

It is equipped with MB91F362G series (208-pin).

When using a 160-pin derivate (MB91F369G) the adapter board STARTERKITMB91360-ADA160 is mapping the pins to the functions on the Starterkit91360.

# 1 Interfacing the MB91360 Starter Kit to the STARTERKITMB91360-ADA160 and probe Cable

The MB91F369 is a 160-pin derivative of the MB91360 family processors. The MB91F369 is packaged in the FTP-160P-M15.

In order to allow users to develop applications on the MB91360 Starter Kit, an adaptor board and Probe Cable have been developed.

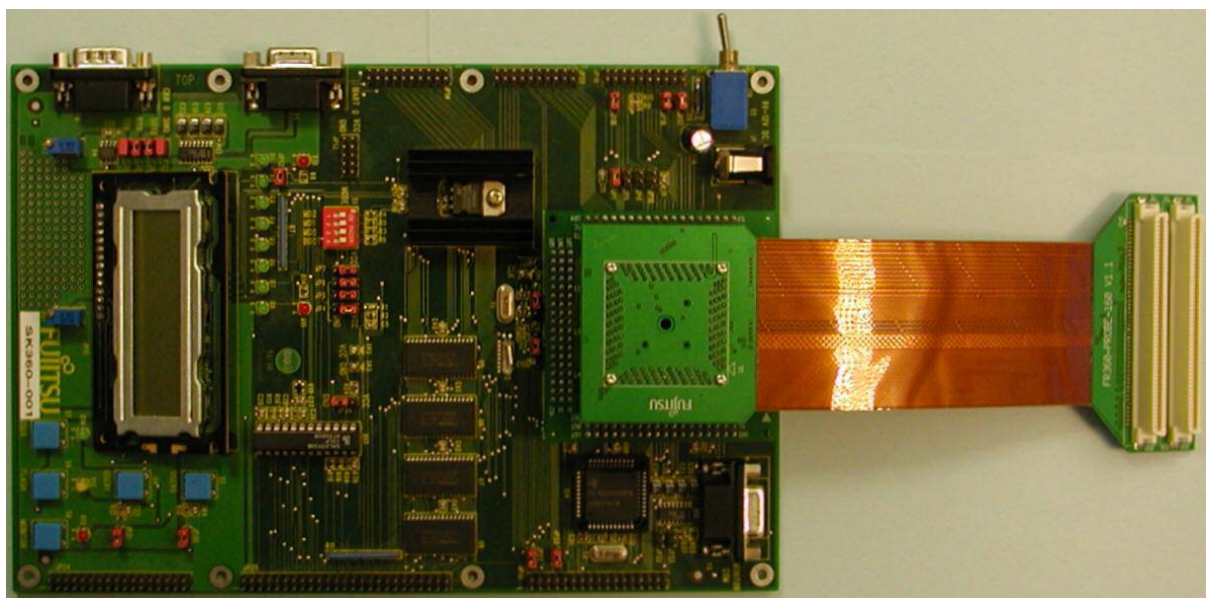
The Adapter Board (STARTERKITMB91360-ADA160), which converts the MB91F362G pin out to the MB91F369G pin out, can be fitted to the Starter Kit with the use of Pin Headers. For the Adapter board to be fitted correctly, the MB91F362G MCU and socket cap must be removed from the Starter kit.

The Adapter Board is fitted with an NQPACK160SD enabling the user to fit either an MCU or the Probe Cable.

The Probe cable interfaces between the Emulator MB2197-01 and the NQPACK160SD. Please note the direction of the probe cable when fitted onto the Starter Kit.

Also included is a pin cross-reference between the MB91FV360G and MB91F369G.

The following diagram shows the starter kit assembled with the STARTERKITMB91360-ADA160 Adapter board and probe cable.



**Figure 1 Diagram showing how to connect the STARTERKITMB91360-ADA160 Adapter board and Probe Cable to the MB91360 Starter Kit**

## 2 Appendix

### 2.1 Pin comparison

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
AS	P90	43	29	JP25
ALE	P91	44	30	JP25
AH/BOOT	P93	46	31	SW1
CS0X	P94	47	32	JP25
CS1X	P95	48	33	JP25
CS2X	P96	49	34	JP25
CS3X	P97	50	35	JP25
DREQ	PB0	61	36	JP25
DACK0	PB1	62	37	JP25
DEOP0	PB2	63	38	JP25
AN8	PG0	53	52	LCD
AN9	PG1	54	53	LCD
AN10	PG2	55		LCD
AN11	PG3	56		LCD
AN12	PG4	57		LCD
AN13	PG5	58		LCD
AN14	PG6	59		LCD
AN15	PG7	60		LCD
AN0	PH0	66	44	JP16
AN1	PH1	67	45	JP16
AN2	PH2	68	46	JP16
AN3	PH3	69	47	JP16
AN4	PH4	70	48	JP16
AN5	PH5	71	49	JP16
AN6	PH6	72	50	JP16
AN7	PH7	73	51	JP16
ATGX	PI3	80	57	JP16
LED0	PJ0	84		LED
LED1	PJ1	85		LED
LED2	PJ2	86		LED

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
LED3	PJ3	87		LED
LED4	PJ4	88		LED
LED5	PJ5	89		LED
LED6	PJ6	90		LED
LED7	PJ7	91		LED
INT0	PK0	94	68	JP20
INT1	PK1	95	69	JP20
INT2	PK2	96	70	JP20
INT3	PK3	97	71	JP20
INT4	PK4	98	72	JP20
INT5	PK5	99	73	JP20
INT6	PK6	100	74	JP20
INT7	PK7	101	75	JP20
IN0	PL0	102		JP20
IN1	PL1	103		JP20
IN2	PL2	104		JP20
IN3	PL3	105		JP20
OUT0	PL4	106		JP20
OUT1	PL5	107		JP20
OUT2	PL6	108		JP20
OUT3	PL7	109		JP20
SGO	PM0	126	76	JP16
SGA	PM1	127	77	JP16
SDA	PM2	128	78	JP20
SCL	PM3	129	79	JP20
SOT4	PN0	130	80	JP14
SIN4	PN1	131	81	JP14
SCK4	PN2	132	82	JP14
SIN3	PN3	133	83	JP14
SOT3	PN4	134	84	JP14
SCK3	PN5	135	85	JP14
OCPA0	PO0	136	101	JP15
OCPA1	PO1	137	102	JP15
OCPA2	PO2	138	103	JP15
OCPA3	PO3	139	104	JP15



Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
OCPA4	PO4	143		JP15
OCPA5	PO5	141		JP15
OCPA6	PO6	142		JP15
OCPA7	PO7	143		JP15
TX0	PP0	146	93	JP14
RX0	PP1	147	94	JP14
TX1	PP2	148	95	JP14
RX1	PP3	149	96	JP14
TX2	PP4	150		JP14
RX2	PP5	151		JP14
SIN0	PQ0	152	97	JP14
SOT0	PQ1	153	98	JP14
SIN1	PQ2	154		JP14
SOT1	PQ3	155		JP14
SIN2	PQ4	156		JP14
SOT2	PQ5	157		JP14
PWM1P0	PR0	162		JP15
PWM1M0	PR1	163		JP15
PWM2P0	PR2	164		JP15
PWM2M0	PR3	165		JP15
PWM1P1	PR4	167		JP15
PWM1M1	PR5	168		JP15
PWM2P1	PR6	169		JP15
PWM2M1	PR7	170		JP15
PWM1P2	PS0	172		JP15
PWM1M2	PS1	173		JP15
PWM2P2	PS2	174		JP15
PWM2M2	PS3	175		JP15
PWM1P3	PS4	177		JP15
PWM1M3	PS5	178		JP15
PWM2P3	PS6	179		JP15
PWM2M3	PS7	180		JP15
VDD		25	56	
VSS		26	11	
VDD		51	66	

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
VSS		52	22	
VDD		79	99	
VSS		78	39	
AVRH		65	41	
AVCC		64	42	
AVSS		74	43	JP16
DA0 (MB91F365GA)		75		JP16
X0A (MB91F366G)		121		
DA1 (MB91F365GA)		76		JP16
X1A (MB91F366G)		122		
ALARM		77	54	
VSS		93	55	
TESTX		81	63	
CPUTESTX		82	64	
VDD		92	109	
X0		119	106	
X1		120	107	
VSS		110	67	
MONCLK		116	110	
VDD		144		
VCC3/C		159	91	
VSS		123	86	
VDD		160		
MD0		111	58	SW1
MD1		112	59	SW1
MD2		113	60	SW1
INITX		115	62	JP25
VDD		182		
VSS		145	92	
VSS		158	100	
VDD		108		
VSS			108	
VDD				
HVSS		171		
HVDD		166		

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
HVSS		161		
HVDD		176		
HVSS		181		
VDD				
A0		9	157	JP25
A1		10	158	JP25
A10		19	7	JP25
A11		20	8	JP25
A12		21	12	JP25
A13		22	13	JP25
A14		23	14	JP25
A15		24	15	JP25
A16		27	16	JP25
A17		28	17	JP25
A18		29	18	JP25
A19		30	19	JP25
A2		11	159	JP25
A20		31	20	JP25
A3		12	160	JP25
A4		13	1	JP25
A5		14	2	JP25
A6		15	3	JP25
A7		16	4	JP25
A8		17	5	JP25
A9		18	6	JP25
BGRNTX		36	27	JP25
BRQ		37	28	JP25
CLK		45	10	JP25
CP0		124		
CS4X		32	23	JP25
CS5X		33	24	JP25
CS6X		34	25	JP25
D0		183	121	JP24
D1		184	122	JP24
D10		193	131	JP24

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
D11		194	132	JP24
D12		195	133	JP24
D13		196	134	JP24
D14		107	135	JP24
D15		200	136	JP24
D16		201	139	JP24
D17		202	140	JP24
D18		203	141	JP24
D19		204	142	JP24
D2		185	123	JP24
D20		205	143	JP24
D21		206	144	JP24
D22		207	145	JP24
D23		208	146	JP24
D24		1	147	JP24
D25		2	148	JP24
D26		3	149	JP24
D27		4	150	JP24
D28		5	151	JP24
D29		6	152	JP24
D3		186	124	JP24
D30		7	153	JP24
D31		8	154	JP24
D4		187	125	JP24
D5		188	126	JP24
D6		189	127	JP24
D7		190	128	JP24
D8		191	129	JP24
D9		192	130	JP24
HSTX		114	61	
LTESTX		83	65	
RDX		38	26	JP25
RDY		35	118	JP25
SELCLK		117		
VCI		125		

Pin Function	Port Function (Where specified)	MB91F362G Pin Number	MB90F369G Pin Number	MB91360 Starter Kit Pin
VDD35			9	
VDD35			21	
VDD35			40	
VDD35			112	
VDD35			119	
VDD35			137	
VDD35			155	
VDDI			87	
VDDI			88	
VDDI			89	
VDDI			90	
VDDX		118	105	
VSS		199	156	
VSS			111	
VSS			113	
VSS			120	
VSS			138	
WR0X		39	117	JP25
WR1X		43	116	JP25
WR2X		41	115	JP25
WR3X		42	114	JP25

**Figure 2: Table comparing Pin and functions for the MB91FV360 series, MB91F362G and MB91F369G**

NOTE:

N.C. : Not connected

## 2.2 Figures

Figure 1 Diagram showing how to connect the STARTERKITMB91360-ADA160 Adapter board and Probe Cable to the MB91360 Starter Kit..... 6

Figure 2: Table comparing Pin and functions for the MB91FV360 series, MB91F362G and MB91F369G ..... 13

### 3 Related Products

- ▶ Starterkit91360 Evaluation board for MB91360 series
- ▶ MB2197-01 Emulator debugger main unit
- ▶ MB2197-10 DSU Probe Cable
- ▶ MB2197-120 Adapter board for MB91FV360G Evaluation device
- ▶ MB2197-127 Probe cable for 208-pin socket (MB91F362G)
- ▶ FR360-PROBE-120 Probe Cable for 120 pin devices  
(MB91F365G/366G/367G/368G/376G)
- ▶ FR360-PROBE-160 Probe Cable for 160 pin devices (MB91F369G)
- ▶ NQPACK160SB Socket for package FPT-160P-M15  
(Tokyo Eletech Corp. [www.tetc.co.jp/e\\_tet.htm](http://www.tetc.co.jp/e_tet.htm))
- ▶ HQPACK160SB Header for NQPACK160SB

## 4 Information in the WWW

Information about FUJITSU MICROELECTRONICS Products can be found on the following Internet pages:

Microcontrollers (8-, 16- and 32bit), Graphics Controllers  
Datasheets and Hardware Manuals, Support Tools (Hard- and Software)

<http://www.fme.gsdc.de/gsd.htm>

Memory products: Flash, SDRAM and FRAM

<http://www.fme.fujitsu.com/products/memory/index1.html>

Linear Products: Power Management, A/D and D/A Converters

<http://www.fme.fujitsu.com/products/linear/start.html>

Media Products: SAW filters, acoustic resonators and VCOs

<http://www.fme.fujitsu.com/products/media/index1.html>

For more information about FUJITSU MICROELECTRONICS

<http://www.fme.fujitsu.com/products/start.html>