

Williams Multigame

EPROM Preparation Manual

(Start with this one!)

Version 1.0

Introduction:

This manual will guide you through the process of creating the ROM images necessary to program the 27C040 type and 27C256 type EPROMs included with your Williams Multigame kit.

You should only use ROMs that you are legally entitled to use. It is left as an exercise to the reader to determine the legal requirements for this in your location.

You have several options to create the ROMs. You can either read ROMs directly off of ROM boards you own, or (provided you have the original ROM boards and just want to save time) you can use backup images from the internet. (As of this writing, <http://go.to/mroms> seems to keep a reasonable list of places to obtain ROM images.)

The included software will run on a Windows/DOS based PC. You will need to open a DOS window (usually done by choosing “MS-DOS Prompt” from the “Start” menu in Windows).

Commands that are to be typed in the DOS window are shown in “courier” font like this:

```
dir a:
```

When you see [enter] that means you press the “enter” key on your keyboard.

Making the EPROM Images:

Start with an open MS-DOS window (or a DOS based PC).

Insert the floppy-disk included with the kit into your “A:” drive (substitute the appropriate letter if your 3.5” floppy-disk drive is not “A:”) and type the following:

```
A: [enter]
```

The floppy disk drive should come on for a second. Now type:

```
wmg_go [enter]
```

This will create a new directory on your “C:” drive called “wmg_roms”. When the command completes you will be in the “wmg_roms” directory. Type the following:

```
dir [enter]
```

You should now see something like the following:

```
Directory of C:\wmg_roms
```

```
STARTEST EXE          14,289   03-28-01   5:01p  STARTEST.EXE
BUILDER  BAT             4,133   03-28-01   5:22p  BUILDER.BAT
DEFNTEST EXE          14,420   02-04-01   7:13p  DEFNTEST.EXE
SPLATEST EXE          14,369   02-04-01   6:56p  SPLATEST.EXE
BUBLTEST EXE          14,385   02-04-01   6:56p  BUBLTEST.EXE
```

WMG_GO	BAT	56	03-28-01	4:43p	WMG_GO.BAT
JOUSTEST	EXE	14,369	03-28-01	4:59p	JOUSTEST.EXE
PATCHER1	EXE	36,352	02-04-01	6:05p	patcher1.exe
ROBO_PAT	PAT	3,472	02-04-01	3:07p	robo_pat.pat
ROBOTEST	EXE	14,417	02-04-01	2:18p	ROBOTEST.EXE
DEFEND	PAT	9,021	08-19-00	7:31p	defend.pat
BLANK	6K	6,144	08-19-00	7:24p	blank.6k
BLANK	4K	4,096	08-19-00	7:09p	blank.4k
SPLAT	PAT	3,673	02-22-96	7:09p	splat.pat
MENU		65,536	03-28-01	5:19p	menu
		15 file(s)	218,732 bytes		

Copy in the original game ROM images:

You will now need to copy the following files into the “wmg_roms” directory. You can either use Windows Explorer or DOS or whatever you’re most comfortable with to copy the files.

Bubbles (available in the “bubbles.zip” archive on the internet—61,424 bytes in ZIP format):

BUBBLES	10B	4,096
BUBBLES	11B	4,096
BUBBLES	12B	4,096
BUBBLES	1B	4,096
BUBBLES	2B	4,096
BUBBLES	3B	4,096
BUBBLES	4B	4,096
BUBBLES	5B	4,096
BUBBLES	6B	4,096
BUBBLES	7B	4,096
BUBBLES	8B	4,096
BUBBLES	9B	4,096
BUBBLES	SND	4,096

Defender (available in the “defender.zip” archive on the internet—22,812 bytes in ZIP format):

DEFEND	1	2,048
DEFEND	10	2,048
DEFEND	11	2,048
DEFEND	12	2,048
DEFEND	2	4,096
DEFEND	3	4,096
DEFEND	4	2,048
DEFEND	6	2,048
DEFEND	7	2,048
DEFEND	8	2,048
DEFEND	9	2,048
DEFEND	SND	2,048

Joust (available in the “joust.zip” and “joustr.zip” archives on the internet—36,543 and 23,590 bytes respectively):

JOUST	SND	4,096
JOUST	WR1	4,096
JOUST	WR2	4,096
JOUST	WR3	4,096
JOUST	SR4	4,096
JOUST	WR5	4,096
JOUST	SR6	4,096
JOUST	SR7	4,096
JOUST	SR8	4,096

JOUST	SR9	4,096
JOUST	SRA	4,096
JOUST	SRB	4,096
JOUST	SRC	4,096

Robotron (available in the “robotron.zip” archive on the internet—36,228 bytes in ZIP format):

ROBOTRON	SB1	4,096
ROBOTRON	SB2	4,096
ROBOTRON	SB3	4,096
ROBOTRON	SB4	4,096
ROBOTRON	SB5	4,096
ROBOTRON	SB6	4,096
ROBOTRON	SB7	4,096
ROBOTRON	SB8	4,096
ROBOTRON	SB9	4,096
ROBOTRON	SBA	4,096
ROBOTRON	SBB	4,096
ROBOTRON	SBC	4,096
ROBOTRON	SND	4,096

Splat! (available in the “splat.zip” archive on the internet—40,145 bytes in ZIP format):

SPLAT	01	4,096
SPLAT	02	4,096
SPLAT	03	4,096
SPLAT	04	4,096
SPLAT	05	4,096
SPLAT	06	4,096
SPLAT	07	4,096
SPLAT	08	4,096
SPLAT	09	4,096
SPLAT	10	4,096
SPLAT	11	4,096
SPLAT	12	4,096
SPLAT	SND	4,096

Stargate (available in the “stargate.zip” archive on the internet—35,948 bytes in ZIP format):

01	4,096	
02	4,096	
03	4,096	
04	4,096	
05	4,096	
06	4,096	
07	4,096	
08	4,096	
09	4,096	
10	4,096	
11	4,096	
12	4,096	
SG	SND	2,048

Generating the Final EPROM Images:

Once the files are copied, return to your DOS window if you left it (make sure you’re still in “C:\wmg_roms” directory). Now type:

```
builder [enter]
```

You should see something like the following:

```
C:\wmg_roms>builder
Preparing Robotron...
Preparing Joust...
Preparing Bubbles...
Preparing Splat...
Preparing Stargate...
Preparing Defender...
```

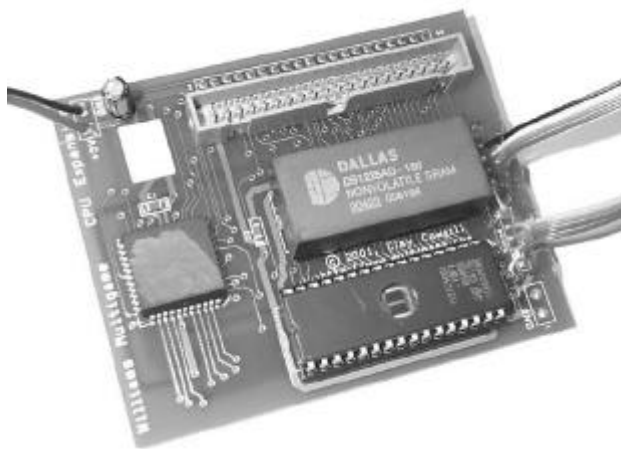
```
Volume in drive C is CLAY8G
Volume Serial Number is 3726-10FC
Directory of C:\wmg_roms
```

```
SND_32K BIN      32,768 03-28-01  5:22p snd_32k.bin
ROM_512K BIN    524,288 03-28-01  5:22p rom_512K.bin
      2 file(s)  557,056 bytes
      0 dir(s)   184.08 MB free
All ROMs were generated OK.
```

The SND_32K.BIN file should be burned onto the 27C256 EPROM. It is a “raw” binary file and can be loaded with a binary-load feature of your EPROM programmer. ROM_512K.BIN should be programmed onto the 27C040 (or 27C4001) EPROM included with your kit. Cover the EPROM windows with a bit of black electrical tape or masking tape to protect the contents of the EPROM.

Install the ROMs on the Williams Multigame boards:

Once you’ve burned the ROMs, you need to install them on the CPU Expansion daughtercard and the Sound Expansion daughtercard. The orientation is marked on the daughtercards, but the following images show proper orientation as well.



All done!

Proceed with the Hardware Installation manual now! If you are not legally entitled to use any of the games you put on the EPROMs you will need to disable them with the Williams Multigame menu system.