Author: Deterous 2025/05/12

Structure of XGD2 Security Sector

Length	Offset(s)	b_0	b_1	b_2	b_3	b_4	b_5	b_6	b_7
1	0x000	Version Number = 0x1				Book Type = 0xE			
1	0x001	Maximum Rate = 0xF				Disc Size = 0x0			
1	0x002	Layer Type = 0x1				Path = 1	Layer Count = 01		0
1	0x003	Track Density = 0x0				Linear Density = 0x1			
4	0x004 – 0x007	Data Start Physical Sector							
4	0x008 – 0x00A	Data End Physical Sector							
4	0x00C – 0x00F	Layer0 End Physical Sector							
1	0x010	Reserved = 0000000							BCA = 0
239	0x011 – 0x0FF	Reserved = 0x00							
4	0x100 – 0x103	**Unknown1** = 0x00, 0x00, 0x00, 0x30							
4	0x104 – 0x107	**Unknown2** = 0x00, 0x00, 0x06, 0xE0							
20	0x108 – 0x11B	**Unknown3** (SHA-1 ?)							
228	0x11C – 0x1FF	Reserved = 0x00							
207	0x200 – 0x2CE	23 Challenge Response data (9 bytes each)							
1	0x2CF	Reserved = 0x00							
4	0x2D0 – 0x2D3	CPR_MAI Key							
44	0x2D4 – 0x2FF	Reserved = 0x00							
1	0x300	enCrypted Challenge Response Table – Version = 0x01							
1	0x301	enCrypted Challenge Response Table – Entries = 0x17							
2	0x302 – 0x303	Reserved = 0x00							
252	0x304 – 0x3FF	28 enCrypted Challenge Responses (9 bytes each)							
96	0x400 – 0x45F	Reserved = 0x00							
16	0x460 – 0x46F	Media ID							
46	0x470 – 0x49D	Reserved = 0x00							
1	0x49E	**Unknown** = 0x04							
8	0x49F – 0x4A6	FILETIME – Authoring Timestamp							
19	0x4A7 – 0x4B9	Reserved = 0x00							
1	0x4BA	**Unknown** = 0x02							
16	0x4BB – 0x4CA	**Unknown 16 bytes** (unique for each ISO)							
20	0x4CB – 0x4DE	SHA-1 hash A							
256	0x4DF – 0x5DE	Signature A							
8	0x5DF – 0x5E6	FILETIME – Mastering Timestamp							
4	0x5E7 – 0x5EA	Reserved = 0x00 (meant to be a time_t ?)							
15	0x5EB – 0x5F9	Reserved = 0x00							
1	0x5FA	**Unknown** = 0x02							
16	0x5FB – 0x60A	**Unknown 16 bytes** (only 26 known variations for XGD1, lines up with IFPI SID codes)							
20	0x60B – 0x61E	SHA-1 hash B							
64	0x61F – 0x65E	Signature B							
1	0x65F	**SS Version** = 0x02							
1	0x660	Number of Security Sector Ranges = 0x15							
207	0x661 – 0x72D	23 Security Sector Ranges (9 bytes each)							
207	0x72E – 0x7FE	Duplicated 23 Security Sector Ranges (9 bytes each)							
1	0x7FF	Reserved = 0x00							

White = Fixed values, Green = Identical for same ISO, Red = Differs across mastering of same ISO, Highlight = Type

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Structure of XGD2 Disc Manufacturing Information

Length	Offset(s)	b_0	b_1	b_2	b_3	b_4	b_5	b_6	b_7
1	0x000	XGD Version = 0x01							
15	0x001 – 0x00F	Reserved = 0x00							
8	0x010 – 0x017	FILETIME – Timestamp							
1	0x018	XOR Key ID = (0x01 for Beta discs, 0x02 for Retail discs)							
7	0x19 – 0x1F	Reserved = 0x00							
16	0x20 – 0x2F	Media ID							
16	0x30 – 0x3F	Reserved = 0x00							
14	0x40 – 0x4F	XeMID							
1563	0x050 – 0x633	Reserved = 0x00							
28	0x634 – 0x64F	**Unknown 28 bytes**							
7	0x650 – 0x656	**Unknown 7 bytes**							
81	0x657 – 0x6A7	**Unknown 81 bytes**							
20	0x6A8 – 0x6BB	**Unknown 20 bytes** (SHA1 signature?)							
100	0x6BC – 0x71F	**Unknown 100 bytes**							
160	0x720 – 0x7BF	**Unknown 160 bytes** (8x SHA1 signatures?)							
28	0x7C0 – 0x7DB	**Unknown 28 bytes**							
8	0x7DC – 0x7E3	Wave, maps to PFI / Video Partition Size							
12	0x7E4 – 0x7EF	Xbox Signature = 0002 0000 5842 4F58 0000 0000 (....XBOX....)							
16	0x7F0 – 0x7FF	**Unknown 16 bytes** (Likely a checksum)							

White = Fixed values, Green = Identical for same ISO, Red = Differs across mastering of same ISO, Highlight = Type

Map of DMI Wave value (0x7DC – 0x7E3) to PFI.bin CRC32 hash:

```
F56BBBAF9A986A27: '8FC52135' # XGD1
E771E4509B321F36: 'E9B8ECFE' # Wave 0 (Experience Disc 1.0)
724EA8F848083A81: '739CEAB3' # Wave 1
7F287181B884AC0E: 'A4CFB59C' # Wave 2
B92884797F24F5B8: '2A4CCBD3' # Wave 3
313DE4782F5E9C87: '05C6C409' # Wave 4-7
5075273CA9308344: '0441D6A5' # Wave 8-9
6E719E5B66481ECA: 'E18BC70B' # Wave 10-12
008EDE9B6F8144F6: '40DCB18F' # Wave 13
180DD029D791F116: '23A198FC' # Wave 14-15
18EB8B92E60935F5: 'AB25DB47' # Wave 16
6F926559C10CD2DC: '169EF597' # Wave 17-18
07E9C4770C916366: '032CCF37' # Wave 19
0C0BA0C912F3C56D: 'F48D24B8' # Wave 20
FA4BE3C4BDD34C19: 'E1647069' # XGD3 #1 (Halo Reach Preview / Kinect Rush)
26FB858A0FC5ED02: '26AF4C58' # XGD3 #2
CFE8ADB9B0D59CD1: '26675ADB' # XGD2 Hybrid (Xbox 360 Trial Disc)
```