

Offset Mapping for PMDG 777

PLEASE READ THIS FIRST:

Developers using FSUIPC to interface with the PMDG line of products must be aware of and comply with certain restrictions designed to prevent the use of PMDG products in a for-hire or pilot training environment. Please see the PMDG EULA that accompanies the 777 line of products for details.

Subject to the above condition, the facilities for reading the PMDG 777 data direct from FSUIPC7 offsets are included with kind permission of PMDG.

To enable the data communication output from the PMDG aircraft, you will need to open the file 777_Options.ini that is located in the 777 persistent storage folder. For Microsoft Store distribution, this folder is located at

```
%LOCALAPPDATA%\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\packages\pmdg-aircraft-77w\work\
```

For Steam distribution, this folder is located at

```
%APPDATA%\Microsoft Flight Simulator\Packages\pmdg-aircraft- 77w\work\
```

Add the following lines to the end of the file:

```
[SDK]
EnableDataBroadcast=1
```

For CDU screen data you also need one or more of these lines:

```
EnableCDUBroadcast.0=1
EnableCDUBroadcast.1=1
```

Which enable the contents of the corresponding CDU screen to be sent to FSUIPC.

Notes for programmers

All offsets are READ ONLY. To change values please use the Events (known as "controls" in FSUIPC) as listed in the "PMDG_777X_SDK.h" file which you can find in the PMDG 777X SDK. The numerical values of those controls can be used directly in button and key assignments in the FSUIPC7.INI file, or from Lua plug-ins using the ipc.control function.

The list here is simply a version of the full list in the PMDG_777X_SDK.h file with the hexadecimal offset, size in bytes, and type of value added. Programmers using C/C++ would be better off using the original header file directly and simply mapping the PMDG_777X_Data structure direct to an offset area, but do note that the reserved area of 168 bytes at the end are NOT mapped to offsets.

The data is provided exactly as provided by the PMDG code

CDU Screen Data

This is provided the raw matrix form provided by PMDG, in offsets 0x5400-0x57FF (for CDU 0), 0x5800-0x5BFF (for CDU1) and 0x5C00-0x5FFF (for CDU2).

NOTE that these offsets are also used by Project Magenta. You cannot use the PMDG and PM at the same time if you want to read this data!

For reference, I've included the format definition, copied from the PMDG SDK header file (for the NGX – should be similar for the NGXu but please refer to the documentation and SDK provided with this aircraft) on the next page, with my own notes added in italics:

777X CDU Screen Cell Structure

The Symbol is the ASCII code of the character to be drawn plus the following special symbols:

\xA1: left arrow

\xA2: right arrow

In fact there are also other special non-ASCII characters used -- the boxes indicating places where a value must be supplied by the pilot, for instance, are not ASCII.

```
struct PMDG_777X_CDU_Cell
{
    unsigned char    Symbol;
    unsigned char    Color;           // any of PMDG_777X_CDU_COLOR_ defines
    unsigned char    Flags;          // a combination of PMDG_777X_CDU_FLAG_ bits
};

// 777X CDU Screen Data Structure
#define CDU_COLUMNS    24
#define CDU_ROWS    14

struct PMDG_777X_CDU_Screen
{
    PMDG_777X_CDU_Cell Cells[CDU_COLUMNS][CDU_ROWS];
    bool Powered;           / true if the CDU is powered
};
```

```
// 777X CDU Screen Cell Colors
#define PMDG_777X_CDU_COLOR_WHITE          0
#define PMDG_777X_CDU_COLOR_CYAN          1
#define PMDG_777X_CDU_COLOR_GREEN          2
#define PMDG_777X_CDU_COLOR_MAGENTA       3
#define PMDG_777X_CDU_COLOR_AMBER          4
#define PMDG_777X_CDU_COLOR_RED            5

// 777X CDU Screen Cell flags
#define PMDG_777X_CDU_FLAG_SMALL_FONT      0x01 // small font, including that used for line headers
#define PMDG_777X_CDU_FLAG_REVERSE         0x02 // character background is highlighted in reverse video
#define PMDG_777X_CDU_FLAG_UNUSED          0x04 // dimmed character color indicating inop/unused entries
```

Offset	Size	Data type	Name	Notes
Overhead maintenance panel				
BACKUP WINDOW HEAT				
6420	2	BYTE x 2	ICE_WindowHeatBackUp_Sw_OFF[2]	Boolean Backup window heat
STANDBY POWER				
6422	1	BYTE	ELEC_StandbyPowerSw	0 OFF, 1 AUTO, 2 BAT
FLIGHT CONTROLS HYDRAULIC VALVE POWER				
6423	3	BYTE x 3	FCTL_WingHydValve_Sw_SHUT_OFF[3]	Booleans Left/Right/Centre
6426	3	BYTE x 3	FCTL_TailHydValve_Sw_SHUT_OFF[3]	Booleans Left/Right/Centre
6429	3	BYTE x 3	FCTL_annunTailHydVALVE_CLOSED[3]	Booleans Left/Right/Centre
642C	3	BYTE x 3	FCTL_annunWingHydVALVE_CLOSED[3]	Booleans Left/Right/Centre
642F	1	BYTE	FCTL_PrimFltComputersSw_AUTO	true: AUTO false: DISC
6430	1	BYTE	FCTL_annunPrimFltComputersDISC	
APU MAINT				
6431	1	BYTE	APU_Power_Sw_TEST	Boolean
EEC MAINT				
6432	2	BYTE x 2	ENG_EECPower_Sw_TEST[2]	Booleans
ELECTRICAL				
6434	1	BYTE	ELEC_TowingPower_Sw_BATT	Boolean
6435	1	BYTE	ELEC_annunTowingPowerON_BATT	Boolean
CARGO TEMP SELECTORS				
6436	2	BYTE x 2	AIR_CargoTemp_Selector[2]	aft / bulk 0=OFF 1=LOW 2=HIGH AFT/BULK
6438	1	BYTE	AIR_CargoTemp_MainDeckFwd_Sel	0: C ... 60: W
6439	1	BYTE	AIR_CargoTemp_MainDeckAft_Sel	0: C ... 60: W
643A	1	BYTE	AIR_CargoTemp_LowerFwd_Sel	0: C ... 60: W
643B	1	BYTE	AIR_CargoTemp_LowerAft_Sel	0: C ... 60: W 67: HEAT H 70: HEAT OFF 73: HEAT L
Overhead panel				
ADIRU				
643C	1	BYTE	ADIRU_Sw_On	Boolean
643D	1	BYTE	ADIRU_annunOFF	Boolean
643E	1	BYTE	ADIRU_annunON_BAT	Boolean
FLIGHT CONTROLS				
643F	1	BYTE	FCTL_ThrustAsymComp_Sw_AUTO	Boolean
6440	1	BYTE	FCTL_annunThrustAsymCompOFF	Boolean
ELECTRICAL				
6441	1	BYTE	ELEC_CabUtilSw	Boolean
6442	1	BYTE	ELEC_annunCabUtilOFF	Boolean
6443	1	BYTE	ELEC_IFEPassSeatsSw	Boolean

6444	1	BYTE	ELEC_annunIFEPassSeatsOFF	Boolean
6445	1	BYTE	ELEC_Battery_Sw_ON	Boolean
6446	1	BYTE	ELEC_annunBattery_OFF	Boolean
6447	1	BYTE	ELEC_annunAPU_GEN_OFF	Boolean
6448	1	BYTE	ELEC_APUGen_Sw_ON	Boolean
6449	1	BYTE	ELEC_APU_Selector	0 OFF, 1 ON, 2 START
644A	1	BYTE	ELEC_annunAPU_FAULT	Boolean
644B	2	BYTE x 2	ELEC_BusTie_Sw_AUTO[2]	Boolean
644D	2	BYTE x 2	ELEC_annunBusTieISLN[2]	Boolean
644F	2	BYTE x 2	ELEC_ExtPwrSw[2]	primary/secondary MOMENTARY SWITCHES
6451	2	BYTE x 2	ELEC_annunExtPowr_ON[2]	Boolean
6453	2	BYTE x 2	ELEC_annunExtPowr_AVAIL[2]	Boolean
6455	2	BYTE x 2	ELEC_Gen_Sw_ON[2]	Boolean
6457	2	BYTE x 2	ELEC_annunGenOFF[2]	Boolean
6459	2	BYTE x 2	ELEC_BackupGen_Sw_ON[2]	Boolean
645B	2	BYTE x 2	ELEC_annunBackupGenOFF[2]	Boolean
645D	2	BYTE x 2	ELEC_IDGDiscSw[2]	Boolean MOMENTARY SWITCHES
645F	2	BYTE x 2	ELEC_annunIDGDiscDRIVE[2]	Boolean
WIPER SELECTORS				
6461	2	BYTE x 2	WIPERS_Selector[2]	left/right 0: OFF 1: INT 2: LOW 3: HIGH
EMERGENCY LIGHTS				
6463	1	BYTE	LTS_EmerLightsSelector	0 OFF, 1 ARMED, 2 ON
SERVICE INTERPHONE				
6464	1	BYTE	COMM_ServiceInterphoneSw	Boolean
PASSENGER OXYGEN				
6465	1	BYTE	OXY_PassOxygen_Sw_On	Boolean
6466	1	BYTE	OXY_annunPassOxygenON	Boolean
WINDOW HEAT				
6467	4	BYTE x 4	ICE_WindowHeat_Sw_ON[4]	L-Side/L-Fwd/ R-Fwd/R-Side
646B	4	BYTE x 4	ICE_annunWindowHeatINOP[4]	L-Side/L-Fwd/ R-Fwd/R-Side
HYDRAULICS				
646F	1	BYTE	HYD_RamAirTurbineSw	Boolean
6470	1	BYTE	HYD_annunRamAirTurbinePRESS	Boolean
6471	1	BYTE	HYD_annunRamAirTurbineUNLKD	Boolean
6472	2	BYTE x 2	HYD_PrimaryEngPump_Sw_ON[2]	Boolean
6474	2	BYTE x 2	HYD_PrimaryElecPump_Sw_ON[2]	Boolean
6476	2	BYTE x 2	HYD_DemandElecPump_Selector[2]	0 OFF, 1 AUTO, 2 ON
6478	2	BYTE x 2	HYD_DemandAirPump_Selector[2]	0 OFF, 1 AUTO, 2 ON
647A	2	BYTE x 2	HYD_annunPrimaryEngPumpFAULT[2]	Boolean
647C	2	BYTE x 2	HYD_annunPrimaryElecPumpFAULT[2]	Boolean
647E	2	BYTE x 2	HYD_annunDemandElecPumpFAULT[2]	Boolean
6480	2	BYTE x 2	HYD_annunDemandAirPumpFAULT[2]	Boolean
PASSENGER SIGNS				
6482	1	BYTE	SIGNS_NoSmokingSelector	0 OFF, 1 AUTO, 2 ON
6483	1	BYTE	SIGNS_SeatBeltsSelector	0 OFF, 1 AUTO, 2 ON
FLIGHT DECK LIGHTS				
6484	1	BYTE	LTS_DomeLightKnob	Position 0...100
6485	1	BYTE	LTS_CircuitBreakerKnob	Position 0...100

6486	1	BYTE	LTS_OvereadPanelKnob	Position 0...100
6487	1	BYTE	LTS_GlareshieldPNLLKnob	Position 0...100
6488	1	BYTE	LTS_GlareshieldFLOODKnob	Position 0...100
6489	1	BYTE	LTS_Storm_Sw_ON	Boolean
648A	1	BYTE	LTS_MasterBright_Sw_ON	Boolean
648B	1	BYTE	LTS_MasterBrightKnob	Position 0...100
648C	1	BYTE	LTS_IndLightsTestSw	0 TEST, 1 BRT, 2 DIM
EXTERIOR LIGHTS				
648D	3	BYTE x 3	LTS_LandingLights_Sw_ON[3]	Booleans Left/Right/Nose
6490	1	BYTE	LTS_Beacon_Sw_ON	Boolean
6491	1	BYTE	LTS_NAV_Sw_ON	Boolean
6492	1	BYTE	LTS_Logo_Sw_ON	Boolean
6493	1	BYTE	LTS_Wing_Sw_ON	Boolean
6494	2	BYTE x 2	LTS_RunwayTurnoff_Sw_ON[2]	Boolean
6496	1	BYTE	LTS_Taxi_Sw_ON	Boolean
6497	1	BYTE	LTS_Strobe_Sw_ON	Boolean
APU AND CARGO FIRE				
6498	2	BYTE x 2	FIRE_CargoFire_Sw_Arm[2]	FWD/AFT
649A	2	BYTE x 2	FIRE_annunCargoFire[2]	FWD/AFT
649C	1	BYTE	FIRE_CargoFireDisch_Sw	Boolean MOMENTARY SWITCH
649D	1	BYTE	FIRE_annunCargoDISCH	Boolean
649E	1	BYTE	FIRE_FireOvhtTest_Sw	Boolean MOMENTARY SWITCH
649F	1	BYTE	FIRE_APUHandle	0: IN (NORMAL) 1: PULLED OUT 2: TURNED LEFT 3: TURNED RIGHT (2 & 3 are mommentary positions)
64A0	1	BYTE	FIRE_APUHandleUnlock_Sw	Boolean MOMENTARY SWITCH
64A1	1	BYTE	FIRE_annunAPU_BTL_DISCH	Boolean
64A2	2	BYTE x 2	FIRE_EngineHandleIlluminated[2]	Boolean
64A4	1	BYTE	FIRE_APUHandleIlluminated	Boolean
64A5	2	BYTE x 2	FIRE_EngineHandleIsUnlocked[2]	Boolean
64A7	1	BYTE	FIRE_APUHandleIsUnlocked	Boolean
64A8	1	BYTE	FIRE_annunMainDeckCargoFire	Boolean
64A9	1	BYTE	FIRE_annunCargoDEPR	DEPR light in DEPR/DISCH guarded switch
ENGINE				
64AA	2	BYTE x 2	ENG_EECMode_Sw_NORM[2]	Boolean
64AC	2	BYTE x 2	ENG_Start_Selector[2]	0: START 1: NORM
64AE	1	BYTE	ENG_Autostart_Sw_ON	Boolean
64AF	2	BYTE x 2	ENG_annunALTN[2]	Boolean
64B1	1	BYTE	ENG_annunAutostartOFF	Boolean
FUEL				
64B2	1	BYTE	FUEL_CrossFeedFwd_Sw	Boolean
64B3	1	BYTE	FUEL_CrossFeedAft_Sw	Boolean
64B4	2	BYTE x 2	FUEL_PumpFwd_Sw[2]	Booleans
64B6	2	BYTE x 2	FUEL_PumpAft_Sw[2]	Booleans

64B8	2	BYTE x 2	FUEL_PumpCtr_Sw[2]	Booleans
64BA	2	BYTE x 2	FUEL_JettisonNozle_Sw[2]	Booleans
64BC	1	BYTE	FUEL_JettisonArm_Sw	Boolean
64BD	1	BYTE	FUEL_FuelToRemain_Sw_Pulled	Boolean
64BE	1	BYTE	FUEL_FuelToRemain_Selector	0: DECR 1: Neutral 2: INCR
64BF	1	BYTE	FUEL_annunFwdXFEED_VALVE	Boolean
64C0	1	BYTE	FUEL_annunAftXFEED_VALVE	Boolean
64C1	2	BYTE x 2	FUEL_annunLOWPRESS_Fwd[2]	Boolean
64C3	2	BYTE x 2	FUEL_annunLOWPRESS_Aft[2]	Boolean
64C5	2	BYTE x 2	FUEL_annunLOWPRESS_Ctr[2]	Boolean
64C7	2	BYTE x 2	FUEL_annunJettisonNozleVALVE[2]	Boolean
64C9	1	BYTE	FUEL_annunArmFAULT	Boolean
ANTI-ICE				
64CA	1	BYTE	ICE_WingAntiIceSw	0 OFF, 1 AUTO, 2 ON
64CB	2	BYTE x 2	ICE_EngAntiIceSw[2]	0 OFF, 1 AUTO, 2 ON
AIR CONDITIONING				
64CD	2	BYTE x 2	AIR_Pack_Sw_AUTO[2]	Boolean
64CF	2	BYTE x 2	AIR_TrimAir_Sw_On[2]	Boolean
64D1	2	BYTE x 2	AIR_RecircFan_Sw_On[2]	Boolean
64D3	2	BYTE x 2	AIR_TempSelector[2]	flt deck / cabin 0: C ... 60: W ... 70: MAN (flt deck only)
64D5	1	BYTE	AIR_AirCondReset_Sw_Pushed	Boolean MOMENTARY
64D6	1	BYTE	AIR_EquipCooling_Sw_AUTO	Boolean
64D7	1	BYTE	AIR_Gasper_Sw_On	Boolean
64D8	2	BYTE x 2	AIR_annunPackOFF[2]	Boolean
64DA	2	BYTE x 2	AIR_annunTrimAirFAULT[2]	Boolean
64DC	1	BYTE	AIR_annunEquipCoolingOVRD	Boolean
64DD	1	BYTE	AIR_AltnVentSw_ON	Boolean
64DE	1	BYTE	AIR_annunAltnVentFAULT	Boolean
64DF	1	BYTE	AIR_MainDeckFlowSw_NORM	M/D FLOW true: NORM false: HIGH
BLEED AIR				
64E0	2	BYTE x 2	AIR_EngBleedAir_Sw_AUTO[2]	Boolean
64E2	1	BYTE	AIR_APUBleedAir_Sw_AUTO	Boolean
64E3	2	BYTE x 2	AIR_IsolationValve_Sw[2]	Boolean
64E5	1	BYTE	AIR_CtrIsolationValve_Sw	Boolean
64E6	2	BYTE x 2	AIR_annunEngBleedAirOFF[2]	Boolean
64E8	1	BYTE	AIR_annunAPUBleedAirOFF	Boolean
64E9	2	BYTE x 2	AIR_annunIsolationValveCLOSED[2]	Boolean
64EB	1	BYTE	AIR_annunCtrIsolationValveCLOSED	Boolean
PRESSURISATION				
64EC	2	BYTE x 2	AIR_OutflowValve_Sw_AUTO[2]	Boolean
64EE	2	BYTE x 2	AIR_OutflowValveManual_Selector[2]	fwd / aft 0: OPEN 1: Neutral 2: CLOSE
64F0	1	BYTE	AIR_LdgAlt_Sw_Pulled	Boolean
64F1	1	BYTE	AIR_LdgAlt_Selector	0: DECR 1: Neutral 2: INCR

64F2	2	BYTE x 2	AIR_annunOutflowValve_MAN[2]	Boolean
Forward panel				
CENTRE				
64F4	1	BYTE	GEAR_Lever	0: UP, 1: DOWN
64F5	1	BYTE	GEAR_LockOvrD_Sw	Boolean
64F6	1	BYTE	GEAR_AltnGear_Sw_DOWN	Boolean
64F7	1	BYTE	GPWS_FlapInhibitSw_OVRD	Boolean
64F8	1	BYTE	GPWS_GearInhibitSw_OVRD	Boolean
64F9	1	BYTE	GPWS_TerrInhibitSw_OVRD	Boolean
64FA	1	BYTE	GPWS_RunwayOvrDsw_OVRD	Boolean
64FB	1	BYTE	GPWS_GSInhibit_Sw	Boolean
64FC	1	BYTE	GPWS_annunGND_PROX_top	Boolean
64FD	1	BYTE	GPWS_annunGND_PROX_bottom	Boolean
64FE	1	BYTE	BRAKES_AutobrakeSelector	0: RTO 1: OFF 2: DISARM 3: "1" ... 5: MAX AUTO
STANDBY - ISFD				
64FF	1	BYTE	ISFD_Baro_Sw_Pushed	Boolean, momentary
6500	1	BYTE	ISFD_RST_Sw_Pushed	Boolean, momentary
6501	1	BYTE	ISFD_Minus_Sw_Pushed	Boolean, momentary
6502	1	BYTE	ISFD_Plus_Sw_Pushed	Boolean, momentary
6503	1	BYTE	ISFD_APP_Sw_Pushed	Boolean, momentary
6504	1	BYTE	ISFD_HP_IN_Sw_Pushed;	Boolean, momentary
LEFT				
6505	1	BYTE	ISP_Nav_L_Sw_CDU	Boolean
6506	1	BYTE	ISP_DsplCtrl_L_Sw_AltN	Boolean
6607	1	BYTE	ISP_AirDataAtt_L_Sw_AltN	Boolean
6508	1	BYTE	DSP_InbdDspl_L_Selector	0: ND 1: NAV 2: MFD 3: EICAS
6509	1	BYTE	EFIS_HdgRef_Sw_Norm	Boolean
650A	1	BYTE	EFIS_annunHdgRefTRUE	Boolean
650C	4	DWORD	BRAKES_BrakePressNeedle	0...100 (corresponds to 0...4000 PSI)
6510	1	BYTE	BRAKES_annunBRAKE_SOURCE	Boolean
RIGHT				
6511	1	BYTE	ISP_Nav_R_Sw_CDU	Boolean
6512	1	BYTE	ISP_DsplCtrl_R_Sw_AltN	Boolean
6513	1	BYTE	ISP_AirDataAtt_R_Sw_AltN	Boolean
6514	1	BYTE	ISP_FMC_Selector	0: LEFT 1: AUTO 2: RIGHT
6515	1	BYTE	DSP_InbdDspl_R_Selector	0: EICAS 1: MFD 2: ND 3: PFD
LEFT & RIGHT SIDEWALLS				
6516	2	BYTE x 2	AIR_ShoulderHeaterKnob[2]	Position 0...100

6518	2	BYTE x 2	AIR_FootHeaterSelector[2]	0 OFF, 1 LOW, 2 HIGH
651A	1	BYTE	LTS_LeftFwdPanelPNLKnob	Position 0...100
651B	1	BYTE	LTS_LeftFwdPanelFLOODKnob	Position 0...100
651C	1	BYTE	LTS_LeftOutbdDsplBRIGHTNESSKnob	Position 0...100
651D	1	BYTE	LTS_LeftInbdDsplBRIGHTNESSKnob	Position 0...100
651E	1	BYTE	LTS_RightFwdPanelPNLKnob	Position 0...100
651F	1	BYTE	LTS_RightFwdPanelFLOODKnob	Position 0...100
6520	1	BYTE	LTS_RightInbdDsplBRIGHTNESSKnob	Position 0...100
6521	1	BYTE	LTS_RightOutbdDsplBRIGHTNESSKnob	Position 0...100
CHRONOMETERS				
6522	2	BYTE x 2	CHR_Chr_Sw_Pushed[2]	Boolean, momentary
6524	2	BYTE x 2	CHR_TimeDate_Sw_Pushed[2]	Boolean, momentary
6526	2	BYTE x 2	CHR_TimeDate_Selector[2]	0: UTC 1: MAN
6528	2	BYTE x 2	CHR_Set_Selector[2]	0: RUN 1: HLDY 2: MM 3: HD
652A	2	BYTE x 2	CHR_ET_Selector[2]	0: RESET (MOMENTARY spring-loaded to HLD) 1: HLD 2: RUN
Glareshield				
EFIS SWITCHES				
652C	2	BYTE x 2	EFIS_MinsSelBARO[2]	Boolean
652E	2	BYTE x 2	EFIS_BaroSelHPA[2]	Boolean
6530	2	BYTE x 2	EFIS_VORADFSe1[2]	0 VOR,1 OFF,2 ADF
6532	2	BYTE x 2	EFIS_VORADFSe12[2]	0 VOR,1 OFF,2 ADF
6534	2	BYTE x 2	EFIS_ModeSel[2]	0: APP 1: VOR 2: MAP 3: PLAN
6536	2	BYTE x 2	EFIS_RangeSel[2]	0: 10 ... 6: 640
6538	2	BYTE x 2	EFIS_MinsKnob[2]	0..99
653A	2	BYTE x 2	EFIS_BaroKnob[2]	0..99
653C	2	BYTE x 2	EFIS_MinsRST_Sw_Pushed[2]	Boolean
653E	2	BYTE x 2	EFIS_BaroSTD_Sw_Pushed[2]	Boolean
6540	2	BYTE x 2	EFIS_ModeCTR_Sw_Pushed[2]	Boolean
6542	2	BYTE x 2	EFIS_RangeTFC_Sw_Pushed[2]	Boolean
6544	2	BYTE x 2	EFIS_WXR_Sw_Pushed[2]	Boolean
6546	2	BYTE x 2	EFIS_STA_Sw_Pushed[2]	Boolean
6548	2	BYTE x 2	EFIS_WPT_Sw_Pushed[2]	Boolean
654A	2	BYTE x 2	EFIS_ARPT_Sw_Pushed[2]	Boolean
654C	2	BYTE x 2	EFIS_DATA_Sw_Pushed[2]	Boolean
654E	2	BYTE x 2	EFIS_POS_Sw_Pushed[2]	Boolean
6550	2	BYTE x 2	EFIS_TERR_Sw_Pushed[2]	Boolean
MCP VARIABLES				
6554	4	FLT32	MCP_IASMach	Mach if < 10.0
6558	1	BYTE	MCP_IASBlan	Boolean
655A	2	WORD	MCP_Heading	
655C	2	WORD	MCP_Altitude	
655E	2	Signed short	MCP_VertSpeed	

6560	4	FLT32	MCP_FPA	
6564	1	BYTE	MCP_VertSpeedBlank	Boolean
MCP SWITCHES				
6565	2	BYTE x 2	MCP_FD_Sw_On[2]	Boolean
6567	2	BYTE x 2	MCP_ATArm_Sw_On[2]	Boolean
6569	1	BYTE	MCP_BankLimitSel	0: AUTO 1: 5 2: 10 ... 5: 25
656A	1	BYTE	MCP_AltIncrSel	Boolean false: AUTO true: 1000
656B	1	BYTE	MCP_DisengageBar	Boolean
656C	1	BYTE	MCP_Speed_Dial	0 ... 99
656D	1	BYTE	MCP_Heading_Dial	0 ... 99
656E	1	BYTE	MCP_Altitude_Dial	0 ... 99
656F	1	BYTE	MCP_VS_Wheel	0 ... 99
6570	1	BYTE	MCP_HDGDial_Mode	Boolean 0: Dial shows HDG 1: Dial shows TRK
6571	1	BYTE	MCP_VSDial_Mode	Boolean 0: Dial shows VS, 1: Dial shows FPA
MCP MOMENTARY SWITCHES				
6572	2	BYTE x 2	MCP_AP_Sw_Pushed[2]	Boolean
6574	1	BYTE	MCP_CLB_CON_Sw_Pushed	Boolean
6575	1	BYTE	MCP_AT_Sw_Pushed	Boolean
6576	1	BYTE	MCP_LNAV_Sw_Pushed	Boolean
6577	1	BYTE	MCP_VNAV_Sw_Pushed	Boolean
6578	1	BYTE	MCP_FLCH_Sw_Pushed	Boolean
6579	1	BYTE	MCP_HDG_HOLD_Sw_Pushed	Boolean
657A	1	BYTE	MCP_VS_FPA_Sw_Pushed	Boolean
657B	1	BYTE	MCP_ALT_HOLD_Sw_Pushed	Boolean
657C	1	BYTE	MCP_LOC_Sw_Pushed	Boolean
657D	1	BYTE	MCP_APP_Sw_Pushed	Boolean
657E	1	BYTE	MCP_Speed_Sw_Pushed	Boolean
657F	1	BYTE	MCP_Heading_Sw_Pushed	Boolean
6580	1	BYTE	MCP_Altitude_Sw_Pushed	Boolean
6581	1	BYTE	MCP_IAS_MACH_Toggle_Sw_Pushed	Boolean
6582	1	BYTE	MCP_HDG_TRK_Toggle_Sw_Pushed	Boolean
6583	1	BYTE	MCP_VS_FPA_Toggle_Sw_Pushed	Boolean
MCP ANNUNCIATORS				
6584	2	BYTE x 2	MCP_annunAP[2]	Boolean
6586	1	BYTE	MCP_annunAT	Boolean
6587	1	BYTE	MCP_annunLNAV	Boolean
6588	1	BYTE	MCP_annunVNAV	Boolean
6589	1	BYTE	MCP_annunFLCH	Boolean
658A	1	BYTE	MCP_annunHDG_HOLD	Boolean
658B	1	BYTE	MCP_annunVS_FPA	Boolean
658C	1	BYTE	MCP_annunALT_HOLD	Boolean
658D	1	BYTE	MCP_annunLOC	Boolean
658E	1	BYTE	MCP_annunAPP	Boolean
DISPLAY SELECT PANEL				
658F	1	BYTE	DSP_L_INBD_Sw	Boolean, momentary
6590	1	BYTE	DSP_R_INBD_Sw	Boolean, momentary

6591	1	BYTE	DSP_LWR_CTR_Sw	Boolean, momentary
6592	1	BYTE	DSP_ENG_Sw	Boolean, momentary
6593	1	BYTE	DSP_STAT_Sw	Boolean, momentary
6594	1	BYTE	DSP_ELEC_Sw	Boolean, momentary
6595	1	BYTE	DSP_HYD_Sw	Boolean, momentary
6596	1	BYTE	DSP_FUEL_Sw	Boolean, momentary
6597	1	BYTE	DSP_AIR_Sw	Boolean, momentary
6598	1	BYTE	DSP_DOOR_Sw	Boolean, momentary
6599	1	BYTE	DSP_GEAR_Sw	Boolean, momentary
659A	1	BYTE	DSP_FCTL_Sw	Boolean, momentary
659B	1	BYTE	DSP_CAM_Sw	Boolean, momentary
659C	1	BYTE	DSP_CHKL_Sw	Boolean, momentary
659D	1	BYTE	DSP_COMM_Sw	Boolean, momentary
659E	1	BYTE	DSP_NAV_Sw	Boolean, momentary
659F	1	BYTE	DSP_CANC_RCL_Sw	Boolean, momentary
65A0	1	BYTE	DSP_annunL_INBD	Boolean, momentary
65A1	1	BYTE	DSP_annunR_INBD	Boolean, momentary
65A2	1	BYTE	DSP_annunLWR_CTR	Boolean, momentary

MASTER WARNING / CAUTION

65A3	2	BYTE x 2	WARN_Reset_Sw_Pushed[2]	Boolean, momentary
65A5	2	BYTE x 2	WARN_annunMASTER_WARNING[2]	Boolean
65A7	2	BYTE x 2	WARN_annunMASTER_CAUTION[2]	Boolean

Other panels

FORWARD AISLE STAND PANEL

65A9	1	BYTE	ISP_DsplCtrl_C_Sw_Altn	Boolean
65AA	1	BYTE	LTS_UpperDsplBRIGHTNESSKnob	Position 0...100
65AB	1	BYTE	LTS_LowerDsplBRIGHTNESSKnob	Position 0...100
65AC	1	BYTE	EICAS_EventRcd_Sw_Pushed	Boolean, momentary

CDU (left/right/centre)

65AD	3	BYTE x 3	CDU_annunEXEC[3]	Boolean
65B0	3	BYTE x 3	CDU_annunDSPY[3]	Boolean
65B3	3	BYTE x 3	CDU_annunFAIL[3]	Boolean
65B6	3	BYTE x 3	CDU_annunMSG[3]	Boolean
65B9	3	BYTE x 3	CDU_annunOFST[3]	Boolean
65BC	3	BYTE x 3	CDU_BrtKnob[3]	Boolean

CONTROL STAND

65BF	1	BYTE	FCTL_AltnFlaps_Sw_ARM	Boolean
65C0	1	BYTE	FCTL_AltnFlaps_Control_Sw	0 RET, 1 OFF, 2 EXT
65C1	1	BYTE	FCTL_StabCutOutSw_C_NORMAL	Boolean
65C2	1	BYTE	FCTL_StabCutOutSw_R_NORMAL	Boolean
65C3	1	BYTE	FCTL_AltnPitch_Lever	0: NOSE DOWN 1: NEUTRAL 2: NOSE UP
65C4	1	BYTE	FCTL_Speedbrake_Lever	Position 0...100 0: DOWN, 25: ARMED, 26...100: DEPLOYED
65C5	1	BYTE	FCTL_Flaps_Lever	0 UP, 1 1, 2 5, 3 15, 4 20, 5 25, 6 30
65C6	2	BYTE x 2	ENG_FuelControl_Sw_RUN[2]	Boolean
65C8	1	BYTE	BRAKES_ParkingBrakeLeverOn	Boolean

AUDIO CONTROL PANELS				
Comm Systems: 0=VHFL 1=VHFC 2=VHFR 3=FLT 4=CAB 5=PA 6=HFL 7=HFR 8=SAT1 9=SAT2 10=SPKR 11=VOR/ADF 12=APP				
65C9	3	BYTE x 3	COMM_SelectedMic[3]	0=capt, 1=F/O, 2=observer values: 0..9 (VHF..SAT2) as listed above; -1 if no MIC is selected
65CC	6	Unsigned short x 3	COMM_ReceiverSwitches[3]	0=capt, 1=F/O, 2=observer Bit mask for selected receivers with bits indicating: 0=VHFL 1=VHFC 2=VHFR 3=FLT 4=CAB 5=PA 6=HFL 7=HFR 8=SAT1 9=SAT2 10=SPKR 11=VOR/ADF 12=APP
65D2	1	BYTE	COMM_OBSAudio_Selector	0 CAPT 1 NORMAL 2 F/O
RADIO CONTROL PANELS (0=capt, 1=F/O, 2=observer)				
65D3	3	BYTE x 3	COMM_SelectedRadio[3]	0: VHFL 1: VHFC 2: VHFL 3: HFL 5: HFR (4 not used)
65D6	3	BYTE x 3	COMM_RadioTransfer_Sw_Pushed[3]	Boolean, Momentary
65D9	3	BYTE x 3	COMM_RadioPanelOff[3]	Boolean
65DC	3	BYTE x 3	COMM_annunAM[3]	Boolean
TCAS PANEL				
65DF	1	BYTE	XPDR_XpndrSelector_R	true: R, false: L
65E0	1	BYTE	XPDR_AltSourceSel_ALTN	true: ALTN false: NORM
65E1	1	BYTE	XPDR_ModeSel	0 STBY 1 ALT RPTG OFF 2 XPNDR 3 TA ONLY 4 TA/RA
65E2	1	BYTE	XPDR_Ident_Sw_Pushed	Boolean, Momentary
ENGINE FIRE				
65E3	2	BYTE x 2	FIRE_EngineHandle[2]	0: IN (NORMAL) 1: PULLED OUT 2: TURNED LEFT 3: TURNED RIGHT (2 & 3 are momentary)
65E5	2	BYTE x 2	FIRE_EngineHandleUnlock_Sw[2]	Boolean, Momentary
65E7	2	BYTE x 2	FIRE_annunENG_BTL_DISCH[2]	Boolean
AILERON & RUDDER TRIM				
65E9	1	BYTE	FCTL_AileronTrim_Switches	0: LEFT WING DOWN 1: NEUTRAL 2: RIGHT WING DOWN (both switches move together)
65EA	1	BYTE	FCTL_RudderTrim_Knob	0: NOSE LEFT 1: NEUTRAL 2: NOSE RIGHT
65EB	1	BYTE	FCTL_RudderTrimCancel_Sw_Pushed	Boolean, Momentary

EVACUATION PANEL				
65EC	1	BYTE	EVAC_Command_Sw_ON	Boolean
65ED	1	BYTE	EVAC_PressToTest_Sw_Pressed	Boolean
65EE	1	BYTE	EVAC_HornSutOff_Sw_Pulled	Boolean
65EF	1	BYTE	EVAC_LightIlluminated	Boolean
AILSE STAND PNL/FLOOD & FLOOR LIGHTS				
65F0	1	BYTE	LTS_AisleStandPNLKnob	Position 0...100
65F1	1	BYTE	LTS_AisleStandFLOODKnob	Position 0...100
65F2	1	BYTE	LTS_FloorLightsSw	0: BRT 1: OFF 2: DIM
DOOR STATES				
Possible values are, 0: open, 1: closed, 2: closed and armed, 3: closing, 4: opening				
65F3	16	BYTE	DOOR_state[16]	0: Entry 1L, 1: Entry 1R, 2: Entry 2L, 3: Entry 2R, 4: Entry 3L, 5: Entry 3R, 6: Entry 4L, 7: Entry 4R, 8: Entry 5L, 9: Entry 5R, 10: Cargo Fwd, 11: Cargo Aft, 12: Cargo Main, 13: Cargo Bulk, 14: Avionics Access, 15: EE Access
6603	1	BYTE	DOOR_CockpitDoorOpen	
6604	2	BYTE x 2	ENG_StartValve[2]	Boolean, true if open
6608	8	FLT32 x 2	AIR_DuctPress[2]	PSI
6610	4	FLT32	FUEL_QtyCenter	LBS
6614	4	FLT32	FUEL_QtyLeft	LBS
6618	4	FLT32	FUEL_QtyRight	LBS
661C	4	FLT32	FUEL_QtyAux	LBS
661F			End of first area	
Second area: Additional Variables				
6C00	1	BYTE	IRS_aligned	Boolean, at least one IRS
6C01	2	BYTE x 2	EFIS_BaroMinimumsSet[2]	
6C04	8	Int x 2	EFIS_BaroMinimums[2]	
6C0C	2	BYTE x 2	EFIS_RadioMinimumsSet[2]	
6C10	8	Int x 2	EFIS_RadioMinimums[2]	
6C18	6	Byte x 6	EFIS_Display[6]	Display formats selected on the display units Values are: 0: Off, 1: Blank, 2: PFD, 3: ND, 4: EICAS, 5: ENG, 6: STAT, 7: CHKL, 8: COMM, 9: CAM,

				10: ELEC, 11: HYD, 12: FUEL, 13: AIR, 14: DOOR, 15: GEAR, 16: FCTL
6C1E	1	BYTE	AircraftModel	1: -200 2: -200ER 3: -300 4: -200LR 5: 777F 6: -300ER
6C1F	1	BYTE	WeightInKg	True KG, False LBS
6C20	1	BYTE	GPWS_V1CallEnabled	Boolean
6C21	1	BYTE	GroundConnAvailable	Boolean
6C22	1	BYTE	FMC_TakeoffFlaps	degrees, 0 if not set
6C23	1	BYTE	FMC_V1	knots, 0 if not set
6C24	1	BYTE	FMC_VR	knots, 0 if not set
6C25	1	BYTE	FMC_V2	knots, 0 if not set
6C26	2	Unsigned short	FMC_ThrustRedAlt	1: FLAPS 1, 5: FLAPS 5, otherwise altitude in ft
6C28	2	Unsigned short	FMC_AccelerationAlt	ft
6C2A	2	Unsigned short	FMC_E0AccelerationAlt	ft
6C2C	1	BYTE	FMC_LandingFlaps	degrees, 0 if not set
6C2D	1	BYTE	FMC_LandingVREF	knots, 0 if not set
6C2E	2	WORD	FMC_CruiseAlt	ft, 0 if not set
6C30	2	signed short	FMC_LandingAltitude	ft, -32767 if not set
6C32	2	WORD	FMC_TransitionAlt	Ft
6C34	2	WORD	FMC_TransitionLevel	ft
6C36	1	BYTE	FMC_PerfInputComplete	Boolean
6C38	4	FLT32	FMC_DistanceToTOD	nm 0.0 if passed, negative if n/a
6C3C	4	FLT32	FMC_DistanceToDest	nm negative if n/a
6C40	9	STR[9]	FMC_flightNumber[9]	
6C49	1	BYTE	WheelChocksSet	
6C4A	1	BYTE	APURunning	
6C4B	1	BYTE	FMC_ThrustLimitMode	FMC thrust limit mode Values are: 0: TO, 1: TO 1, 2: TO 2, 3: TO B, 4: CLB, 5: CLB 1, 6: CLB 2, 7: CRZ, 8: CON, 9: G/A, 10: D-TO, 11: D-TO 1, 12: D-TO 2, 13: A-TO, 14: A-TO 1,

				15: A-TO 2, 16: A-TO B
6C4C	10	BYTE x 10	ECL_ChecklistComplete[10]	Normal checklist completion status Array elements are: 0: PREFLIGHT 1: BEFORE_START 2: BEFORE_TAXI 3: BEFORE_TAKEOFF 4: AFTER_TAKEOFF 5: DESCENT 6: APPROACH 7: LANDING 8: SHUTDOWN 9: SECURE
6C56	84	BYTE x 84	Reserved	
6C99			Last byte of second reserved area for PMDG 777X	

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