AiM Infotech

EFI Europe Euro4, Euro6, Euro12 ECUs

Release 1.02

ECU

AiM

This tutorial explains how to connect EFI Europe ECUs to AiM devices.

1
Supported models

EFI Europe supported models are:

- Euro4
- Euro6 and Euro6 TC Trim
- Euro12 and Euro12 firmware version S480

Warning: compatibility between EFI ECUs and AiM devices depends on the ECU firmware version. Refer to the following table to know what to do.

| ECU Model	Firmware version	Compatibility with AiM devices	What to do
Euro4 Euro6 Euro12	200	Never	Contact an EFI dealer to have ECU firmware upgraded
Euro4 Euro6 Euro12	300	Always	Set up the ECU via EFI "ECT Mod" software.
Euro4 Euro6 Euro12	400	Always	Set up the ECU via EFI "ECT Mod" software.

2
Software setup

To setup EFI Euro4, Euro6 and Euro12 with firmware version 300 or 400 ECUs follow these steps.

Run the software, load an Euro4 or Euro6 or Euro12 ECU and follow this path:

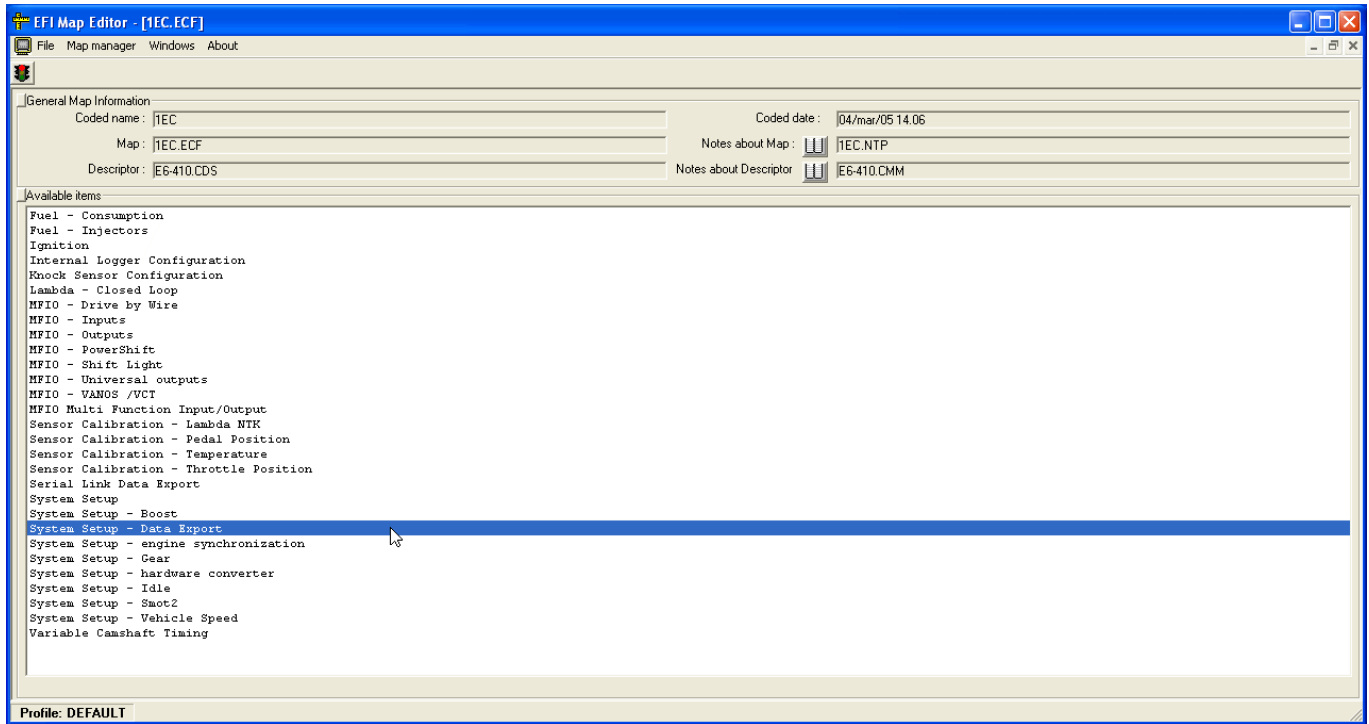- in "Map Editor" page click: "Map Manager –>ECU Setup Map"
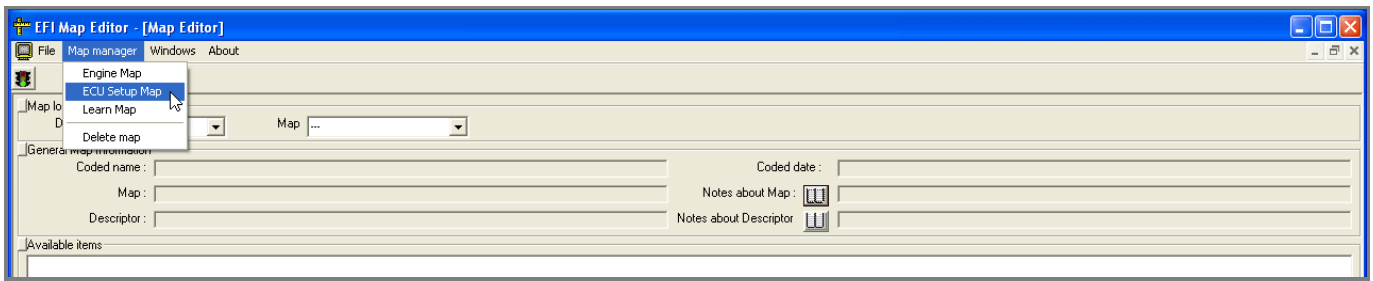
- "File –>Load from file"
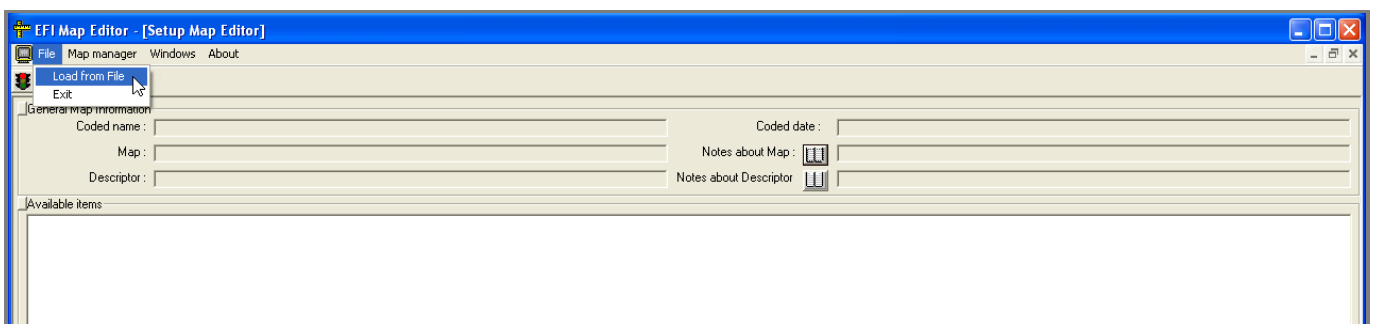
- select ".ECF" file
- select ".CDS" file: the map is loaded

- select "System Setup – data export"

- Data export table is loaded
- set **first row** on "2"
- set all other values on "O" for EURO4, EURO6 and EURO12 as shown here below.
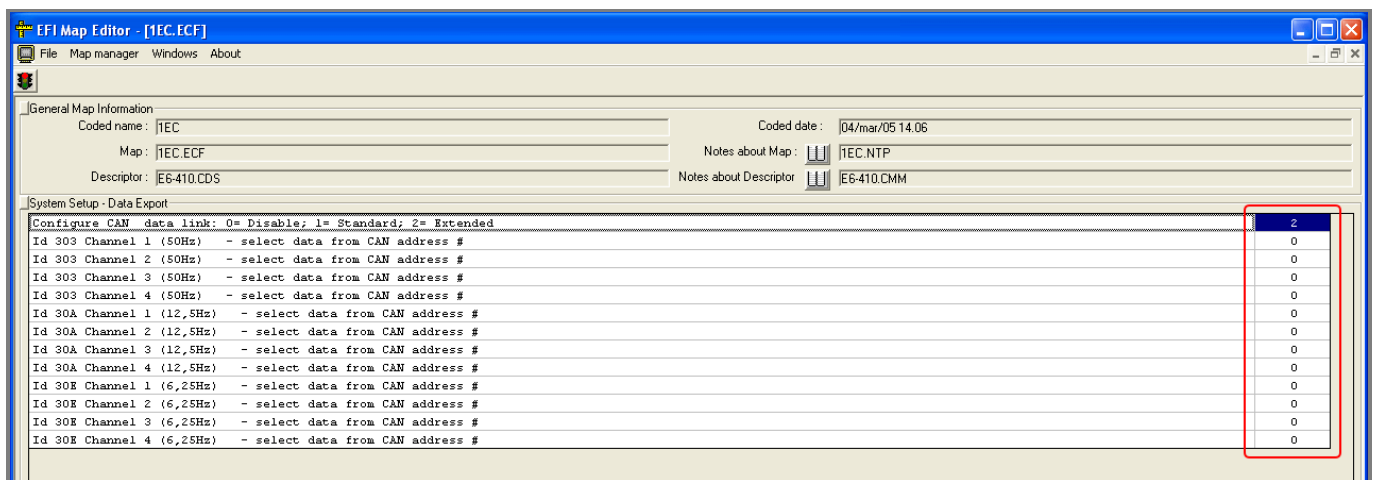
- set all other values as shown here below for Euro6 TC TRIM.

ID	Value
30A	19
30A	88
30A	89
30A	90
30E	191
30E	192
30E	195
30E	193
303	42
303	506
303	106
303	100

- set all other values as shown here below for EFI EURO12 S480

ID	Value	ID	Value	ID	Value
300	35	305	421	30A	77
300	60	305	422	30A	457
300	36	305	423	30A	303
300	37	305	424	30A	353
301	253	306	425	30B	55
301	254	306	370	30B	56
301	380	306	371	30B	307
301	381	306	372	30B	309
302	382	307	377	30C	399
302	383	307	51	30C	44
302	384	307	42	30C	47
302	385	307	217	30C	46
303	572	308	551	30D	58
303	570	308	552	30D	24
303	573	308	553	30D	3
303	571	308	93	30D	190
304	181	309	550	30E	150
304	412	309	79	30E	233
304	418	309	78	30E	365
304	420	309	63	30E	367

3
Wiring connection

EFI Euro4, Euro6 and Euro12 ECUs are equipped with a bus communication protocol based on CAN on the front connectors. Here follows information on how to connect them to AiM devices.

3.1
Wiring connection of EFI Euro4

To connect EFI Euro4 to AiM devices use the left front connector of the ECU. Here below it is shown and bottom of it is connection table.
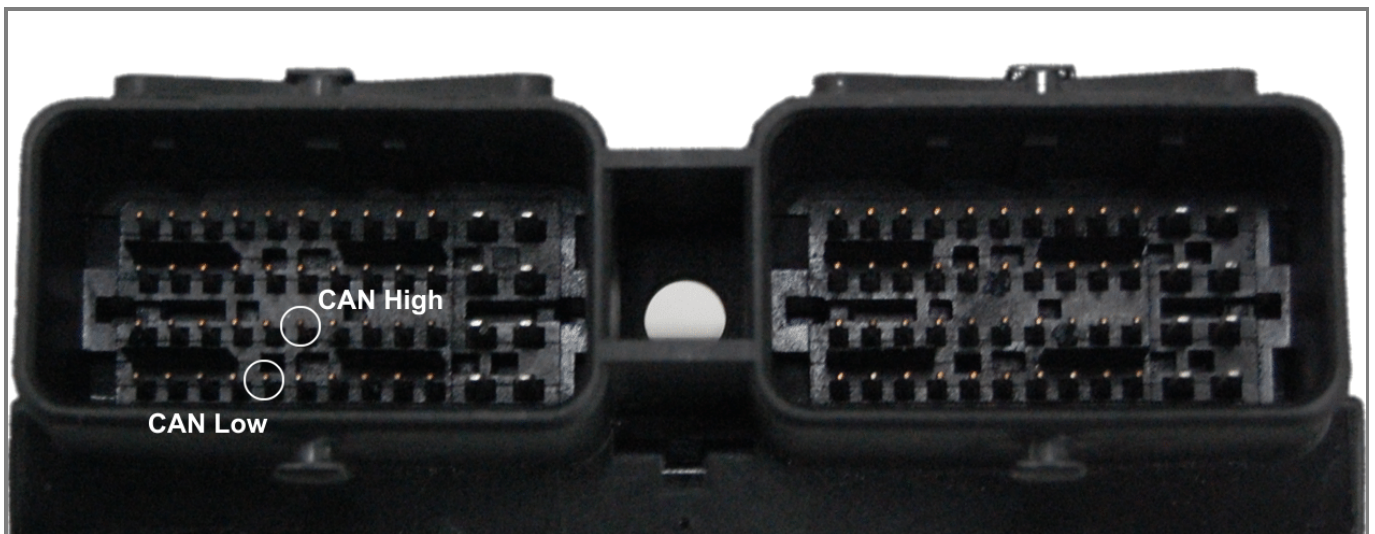
ECU Connector pin	Pin function	AiM cable
F3	CAN High	CAN+
E4	CAN Low	CAN-

3.2
Wiring connection of EFI Euro6 and EURO6 TC TRIM

To connect EFI Euro6 and Euro6 TC TRIM to AiM devices use the front connector of the ECU. Here below is shown the connection table.

ECU Connector pin	Pin function	AiM cable
55	CAN High	CAN+
70	CAN Low	CAN-

3.3
Wiring connection of EFI Euro12

EFI Euro 12 is equipped with two front connectors: a 41 pins connector and a 79 pins one. To connect EFI Euro12 to AiM devices use the 79 pins front connector of the ECU. Here below is connection table.

ECU Connector pin	Pin function	AiM cable
10	CAN High	CAN+
9	CAN Low	CAN-

4
AiM Logger configuration

Before connecting the ECU to AiM device set this up using AiM Race Studio software. The parameters to select in the device configuration are:

- select ECU manufacturer "EFI_EUROPE"
- and according to the ECU you have connected: "ECU Model"
    - "Euro_4" or
    - "Euro_6_TC_TRIM"
    - "Euro_6/Euro_12"
    - "Euro_12_S480"

5
Available channels

Channels received by AiM devices connected to EFI Europe ECU changes according to the selected protocol.

5.1
"EFI EUROPE" "EURO_4" protocol

Channels received by AiM devices connected to "EFI EUROPE" "EURO_4" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	EFI_RPM	RPM
ECU_2	EFI_TPS1	Throttle position bank 1
ECU_4	EFI_MAP	Manifold pressure bank 1
ECU_5	EFI_LNR1	Analogic linear input 1
ECU_6	EFI_DFARF	Throttle position derivative
ECU_7	EFI_DMAP	Manifold pressure Derivative

ECU_8	EFI_AE	Fuel enrichment for positive TPS transient
ECU_9	EFI_LNR2	Analogic linear input 2
ECU_10	EFI_WHEELSPD	Driven wheel speed
ECU_11	EFI_DRAXSSPD	Driving wheel speed
ECU_12	EFI_SLIP	Slip factor
ECU_13	EFI_OSASLIP	Ignition cut vs slip factor
ECU_14	EFI_PPS	Throttle request
ECU_15	EFI_USERDEF02	User defined channel 02
ECU_16	EFI_USERDEF03	User defined channel 03
ECU_17	EFI_KINJHPRC	Terog_U/Terog_L
ECU_18	EFI_TEROGBASE	Injection table - injection time
ECU_19	EFI_TEROG	Real injection time
ECU_20	EFI_SABASE	Spark advance on ignition table
ECU_21	EFI_SA	Real spark advance
ECU_22	EFI_NGK1	Lambda value
ECU_24	EFI_KFUELLEARN	Fuel correction coefficient for auto mapping
ECU_25	EFI_CLC1	Closed loop control 1 (injection)
ECU_27	EFI_GEAR	Engaged gear
ECU_29	EFI_GEARSHIFTTIME	Gear shift time
ECU_30	EFI_OILPRESS	Oil pressure
ECU_31	EFI_FUELPRESS	Fuel pressure
ECU_32	EFI_BARO	Barometric pressure
ECU_33	EFI_LNR3	Analogic linear input 3
ECU_34	EFI_LNR4	Analogic linear input 4
ECU_36	EFI_BATTVOLTDIR	Direct battery supply
ECU_37	EFI_BATTVOLTKEY	ECU voltage supply
ECU_42	EFI_LNR5L	Analogic linear input 5
ECU_43	EFI_LNR6L	Analogic linear input 6
ECU_44	EFI_SLIPCALC	Calculated slip (with engine strategies)
ECU_45	EFI_FASEUP	Upper injectors phase
ECU_46	EFI_FASEDW	Lower injectors phase
ECU_47	EFI_USERDEF08	User defined channel 8

ECU_48	EFI_WATERTEMP	Engine coolant temperature
ECU_49	EFI_OILTEMP	Oil temperature
ECU_51	EFI_AIRTEMP01	Air temperature bank 01
ECU_54	EFI_KFUELCAL	Calibration fuel multiplier
ECU_56	EFI_SELEEPROM	Selected Engine Map
ECU_57	EFI_USERDEF10	User defined channel 10
ECU_58	EFI_USERDEF11	User defined channel 11
ECU_59	EFI_USERDEF12	User defined channel 12

5.2
"EFI EUROPE" "EURO_6_TC_TRIM" protocol

Channels received by AiM devices connected to "EFI EUROPE" "EURO_6_TC_TRIM" protocol are:

ID	CHANNEL NAME	FUNCTION
ECU_1	EFI_RPM	RPM
ECU_2	EFI_TPS1	Throttle position sensor bank 1
ECU_3	EFI_TPS2	Throttle position sensor bank 2
ECU_4	EFI_MAP	Manifold air pressure bank 1
ECU_5	EFI_MAP2	Manifold air pressure bank 2
ECU_6	EFI_DFARF	Throttle position derivative
ECU_7	EFI_DMAP	Manifold pressure Derivative
ECU_8	EFI_AE	Fuel enrichment for positive TPS transient
ECU_9	EFI_DE	Fuel enrichment for negative TPS transient
ECU_10	EFI_WHEELSPD	Driven wheel speed
ECU_11	EFI_DRAXSSPD	Driving wheel speed
ECU_12	EFI_SLIP	Slip factor
ECU_13	EFI_OSASLIP	Ignition cut vs slip factor
ECU_14	EFI_DfarfCalc	Calculated throttle position derivative
ECU_15	EFI_PPSpc	Throttle request
ECU_16	EFI_TINJ1	Injection time for cylinder 1

ECU_17	EFI_TINJ5	Injection time for cylinder 5
ECU_18	EFI_TEROGBASE	Injection table - injection time
ECU_19	EFI_TEROG	Real injection time
ECU_20	EFI_SABASE	Injection table - injection time
ECU_21	EFI_SA	Real spark advance
ECU_22	EFI_NTK1	Lambda value 1
ECU_23	EFI_NTK2	Lambda value 2
ECU_24	EFI_KFUELLEARN	Fuel correction coefficient for auto mapping
ECU_25	EFI_CLC1	Closed loop control 1 (injection)
ECU_26	EFI_CLC2	Closed loop control 2 (injection)
ECU_27	EFI_GEAR	Engaged gear
ECU_29	EFI_GEARSHIFTTIME	Gear shift time
ECU_30	EFI_OILPRESS	Oil pressure
ECU_31	EFI_FUELPRESS	Fuel pressure
ECU_32	EFI_FASE_L	Lower injectors phase
ECU_33	EFI_FASE_H	Upper injectors phase
ECU_34	EFI_KFuelCntCrk	Cranking fuel multiplier
ECU_35	EFI_KinjHIGHperc	Terog_U/Terog_L
ECU_36	EFI_BATTVOLTDIR	Direct battery supply
ECU_37	EFI_BATTVOLTKEY	ECU voltage supply
ECU_44	EFI_AEDFarfl	Fuel enrichment for positive TPS transient derivative
ECU_45	EFI_Slip Calc	Calculated slip (with engine strategies)
ECU_46	EFI_TC_TRIM	Slip multiplier (for traction control)
ECU_47	EFI_SELEEPROM	Selected Engine Map
ECU_48	EFI_WATERTEMP	Water temperature
ECU_49	EFI_OILTEMP	Oil temperature
ECU_50	EFI_FUELTEMP	Fuel temperature
ECU_51	EFI_AIRTEMP01	Air temperature bank 01
ECU_52	EFI_AIRTEMP02	Air temperature bank 02
ECU_54	EFI_KFUELCAL	Calibration fuel multiplier
ECU_56	EFI_FUELUSED	Injected fuel
ECU_57	EFI_FUELLEFT	Left fuel

5.3
"EFI EUROPE" "EURO_6 / EURO_12" protocol

Channels received by AiM devices connected to "EFI EUROPE" "EURO_6/EURO_12" protocol are

ID	CHANNEL NAME	FUNCTION
ECU_1	EFI_RPM	RPM
ECU_2	EFI_TPS1	Throttle position bank 1
ECU_3	EFI_TPS2	Throttle position bank 2
ECU_4	EFI_MAP	Manifold air pressure bank 1
ECU_5	EFI_MAP2	Manifold air pressure bank 2
ECU_6	EFI_DFARF	Throttle position derivative
ECU_7	EFI_DMAP	Manifold air pressure Derivative
ECU_8	EFI_AE	Fuel enrichment for positive TPS transient
ECU_9	EFI_DE	Fuel enrichment for negative TPS transient
ECU_10	EFI_WHEELSPD	Driven wheel speed
ECU_11	EFI_DRAXSSPD	Driving wheel speed
ECU_12	EFI_SLIP	Slip factor
ECU_13	EFI_OSASLIP	Ignition cut vs slip factor
ECU_18	EFI_TEROGBASE	Injection table – injection time
ECU_19	EFI_TEROG	Real injection time
ECU_20	EFI_SABASE	Spark advance on ignition table
ECU_21	EFI_SA	Real spark advance
ECU_22	EFI_NTK1	Lambda value 1
ECU_23	EFI_NTK2	Lambda value 2
ECU_24	EFI_KFUELLEARN	Fuel correction coefficient for auto mapping
ECU_25	EFI_CLC1	Closed loop control 1 (injection)
ECU_26	EFI_CLC2	Closed loop control 2 (injection)
ECU_27	EFI_GEAR	Engaged gear
ECU_29	EFI_GEARSHIFTTIME	Gear shift time
ECU_30	EFI_OILPRESS	Oil pressure

ECU_31	EFI_FUELPRESS	Fuel pressure
ECU_36	EFI_BATTVOLTDIR	Direct battery supply
ECU_37	EFI_BATTVOLTKEY	ECU voltage supply
ECU_48	EFI_WATERTEMP	Engine coolant temperature
ECU_49	EFI_OILTEMP	Oil temperature
ECU_50	EFI_FUELTEMP	Fuel temperature
ECU_51	EFI_AIRTEMP01	Air temperature bank 01
ECU_52	EFI_AIRTEMP02	Air temperature bank 02
ECU_54	EFI_KFUELCAL	Calibration fuel multiplier
ECU_56	EFI_FUELUSED	Injected fuel
ECU_57	EFI_FUELLEFT	Left fuel

5.4
"EFI EUROPE" "EURO_12_S480" protocol

Channels received by AiM devices connected to "EFI EUROPE" "EURO_12_S480" protocol are

ID	CHANNEL NAME	FUNCTION
ECU_1	E12_RPM	RPM
ECU_2	E12_TPS1	Throttle position sensor
ECU_3	E12_NTK1	Lambda value 1
ECU_4	E12_NTK2	Lambda value 2
ECU_5	E12_CLC1	Closed loop control 1 (injection)
ECU_6	E12_CLC2	Closed loop control 2 (injection)
ECU_7	E12_KNOCK1	Knock retard on ignition 1
ECU_8	E12_KNOCK2	Knock retard on ignition 2
ECU_9	E12_KNOCK3	Knock retard on ignition 3
ECU_10	E12_KNOCK4	Knock retard on ignition 4
ECU_11	E12_KNOCK5	Knock retard on ignition 5
ECU_12	E12_KNOCK6	Knock retard on ignition 6
ECU_13	E12_CAM_POS	Inlet camshaft position

ECU_14	E12_CAM_T_POS	Inlet camshaft target position
ECU_15	E12_CAM_E_POS	Inlet camshaft error position
ECU_16	E12_CAM_PULSE	Inlet camshaft pulse width
ECU_17	E12_TEROG	Injectors erogation time (before cylinder trim)
ECU_18	E12_SA_BASE	Spark advance base map
ECU_19	E12_SA_BANK1	Spark advance bank 1
ECU_20	E12_SA_OFFS_C1	Spark advance offset in knock control cylinder 1
ECU_21	E12_SA_OFFS_C2	Spark advance offset in knock control cylinder 2
ECU_22	E12_SA_OFFS_C3	Spark advance offset in knock control cylinder 3
ECU_23	E12_SA_OFFS_C4	Spark advance offset in knock control cylinder 4
ECU_24	E12_SA_OFFS_C5	Spark advance offset in knock control cylinder 5
ECU_25	E12_SA_OFFS_C6	Spark advance offset in knock control cylinder 6
ECU_26	E12_THR_KNOCK	Knock indication threshold
ECU_27	E12_TIM_KNOCK	Knock timer
ECU_28	E12_KNOCK_CNT1	Knock count on cylinder 1
ECU_29	E12_KNOCK_CNT6	Knock count on cylinder 6
ECU_30	E12_MAP	Manifold air pressure
ECU_31	E12_DTPS	Throttle position sensor derivative
ECU_32	E12_AE1	Acceleration fuel enrichment
ECU_33	E12_GEAR_POT_I	Gear potentiometer input in bits
ECU_34	E12_GEAR_SF_T	Gear cut power shift timer
ECU_35	E12_GEAR_SF_TR	Remaining time in power shift strategy
ECU_36	E12_POWER_SF	Power shift switch activated
ECU_37	E12_GEAR	Engaged gear
ECU_38	E12_SLIP_CALC	Slip calculation
ECU_39	E12_SLIP	Slip
ECU_40	E12_VEH_SPEED	Vehicle speed
ECU_41	E12_DAX_SPEED	Drive axle speed
ECU_42	E12_OSA_SLIP	Spark advance offset
ECU_43	E12_TC_KFUEL	Fuel multiplier in traction control
ECU_44	E12_TC_CUT_LEV	Traction control cut level
ECU_45	E12_OIL_PR	Oil pressure

ECU_46	E12_FUEL_PR	Fuel pressure
ECU_47	E12_BRK_PR_FR	Front brake pressure
ECU_48	E12_BRK_PR_RR	Rear brake pressure
ECU_49	E12_CLUTCH_PR	Clutch pressure
ECU_50	E12_T_H2O	Engine coolant temperature
ECU_51	E12_T_OIL	Oil temperature
ECU_52	E12_T_AIR1	Manifold air temperature
ECU_53	E12_T_FUEL	Fuel temperature
ECU_54	E12_BATT_KEY	Battery supply
ECU_55	E12_BATT_DIR	Battery voltage direct
ECU_56	E12_FUEL_USED	Fuel consumption
ECU_57	E12_SEL_EEPROM	Selected engine map number
ECU_58	E12_KFUEL_CAL	Fuel calibration correction
ECU_59	E12_SLIP_RATIO	Slip modulated buy trim and TPS
ECU_60	E12_TRIM_SLIP	Traction control modifier from Trim