

# EXTRACTING EVENT DATA FROM MEMORY CHIPS WITHIN A DETROIT DIESEL DDEC V

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**TULSA**  
*Department of  
Mechanical Engineering*

# Overview

1. Problem Definition
2. Figuring out what to look for (Produce Known Data)
3. Locating Known data in memory from an Exemplar ECM
4. Finding Data in the Subject ECM (Unknown)
5. Decoding and Presenting the data

# Problem Statement

**We want to connect to a truck...**



# ...and get data.

## DDEC® Reports - Hard Brake

#1

Print Date: 10/2/2013 2:30 PM  
University of Tulsa

Trip: 09/17/12 12:26:15 To 10/02/13 (CST)  
Vehicle ID: DDEC 6 TIB  
Driver ID:  
Odometer: 619.0 mi  
Engine S/N: 06R1003832

Trip Distance	619.0 mi	Trip Time	0:00:00
Trip Fuel	0.00 gal	Fuel Consumption	0.00 gal/h
Fuel Economy	0.00 mpg	Idle Time	0:00:00
Avg Drive Load	0 %	Idle Percent	0.00 %
Avg Vehicle Speed	0.0 mph	Idle Fuel	0.00 gal
		Parked Regen Time	0:00:00

Incident Time: 10/2/2013 1:07:54 PM (CST) Incident Odometer: 619.0 mi

Time	Vehicle Speed (mph)	Engine Speed (rpm)	Brake	Clutch	Engine Load (%)	Throttle (%)	Cruise	Diag. Code
-0:59	23.5	0	No	No	0.00	0.00	No	Yes
-0:58	22.0	0	No	No	0.00	0.00	No	Yes
-0:57	20.0	0	No	No	0.00	0.00	No	Yes
-0:56	18.0	0	No	No	0.00	0.00	No	Yes
-0:55	16.0	0	No	No	0.00	0.00	No	Yes
-0:54	14.0	0	No	No	0.00	0.00	No	Yes
-0:53	12.0	0	No	No	0.00	0.00	No	Yes
-0:52	10.0	0	No	No	0.00	0.00	No	Yes
-0:51	8.0	0	No	No	0.00	0.00	No	Yes
-0:50	6.5	0	No	No	0.00	0.00	No	Yes
-0:49	4.0	0	No	No	0.00	0.00	No	Yes
-0:48	2.5	0	No	No	0.00	0.00	No	Yes
-0:47	1.0	0	No	No	0.00	0.00	No	Yes

# A direct approach may be needed

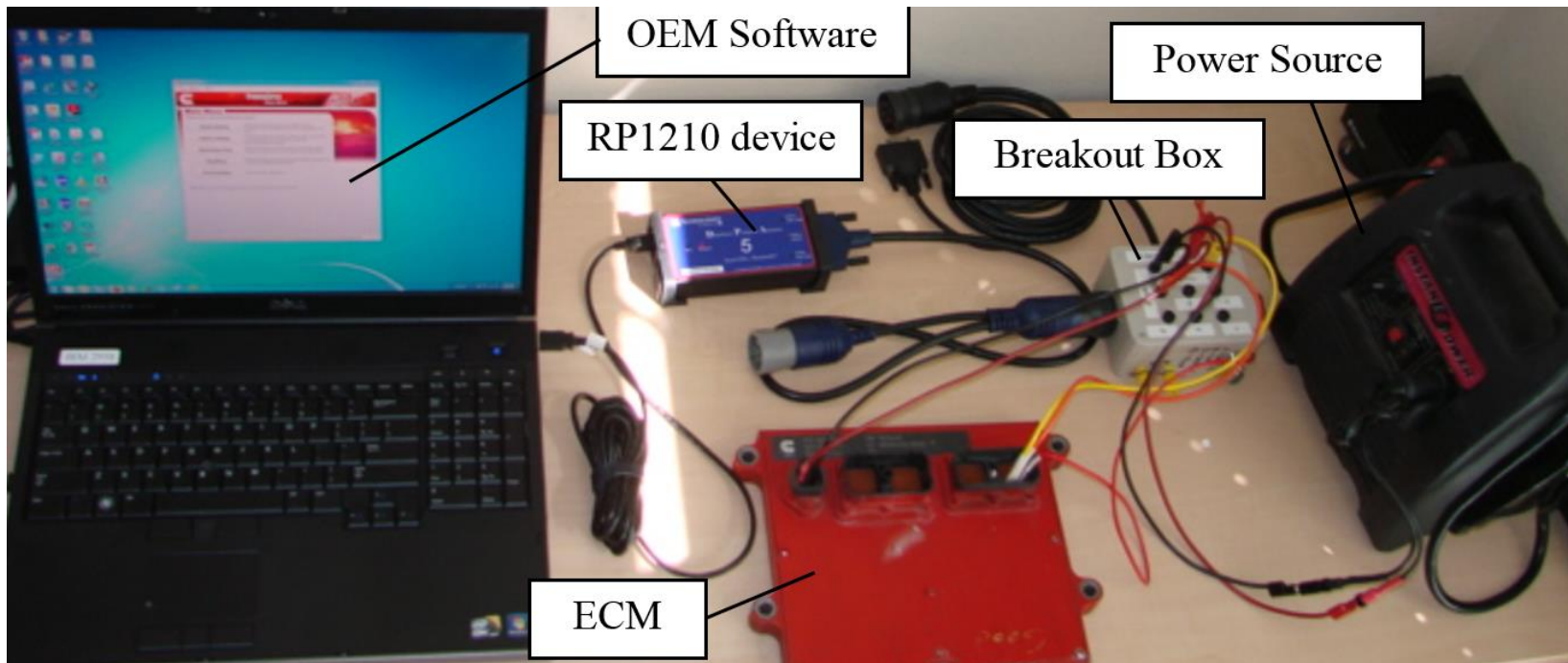
The electrical system is compromised.



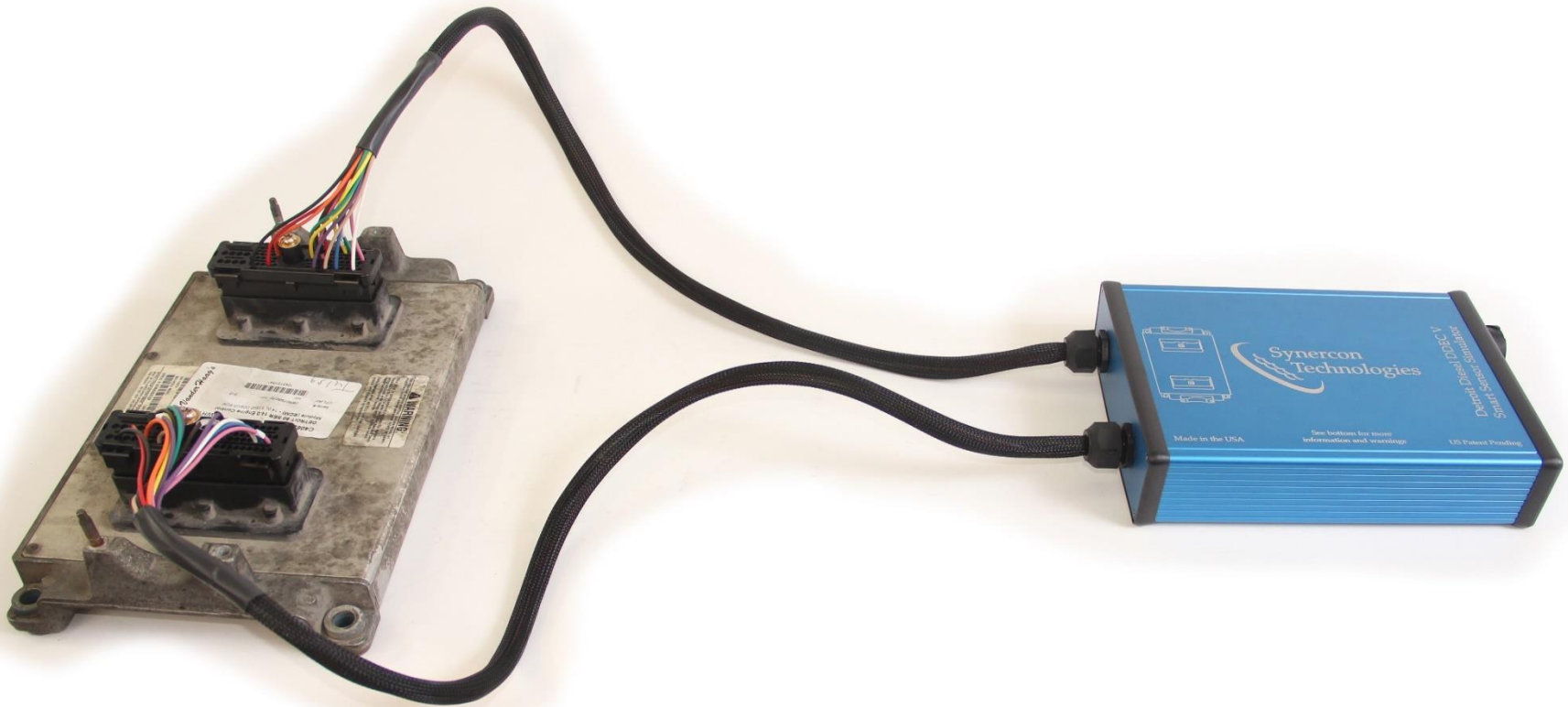


# Bench Top Download (or Image?)

But this sets new faults.



# Bench Top Download (Fault Free)



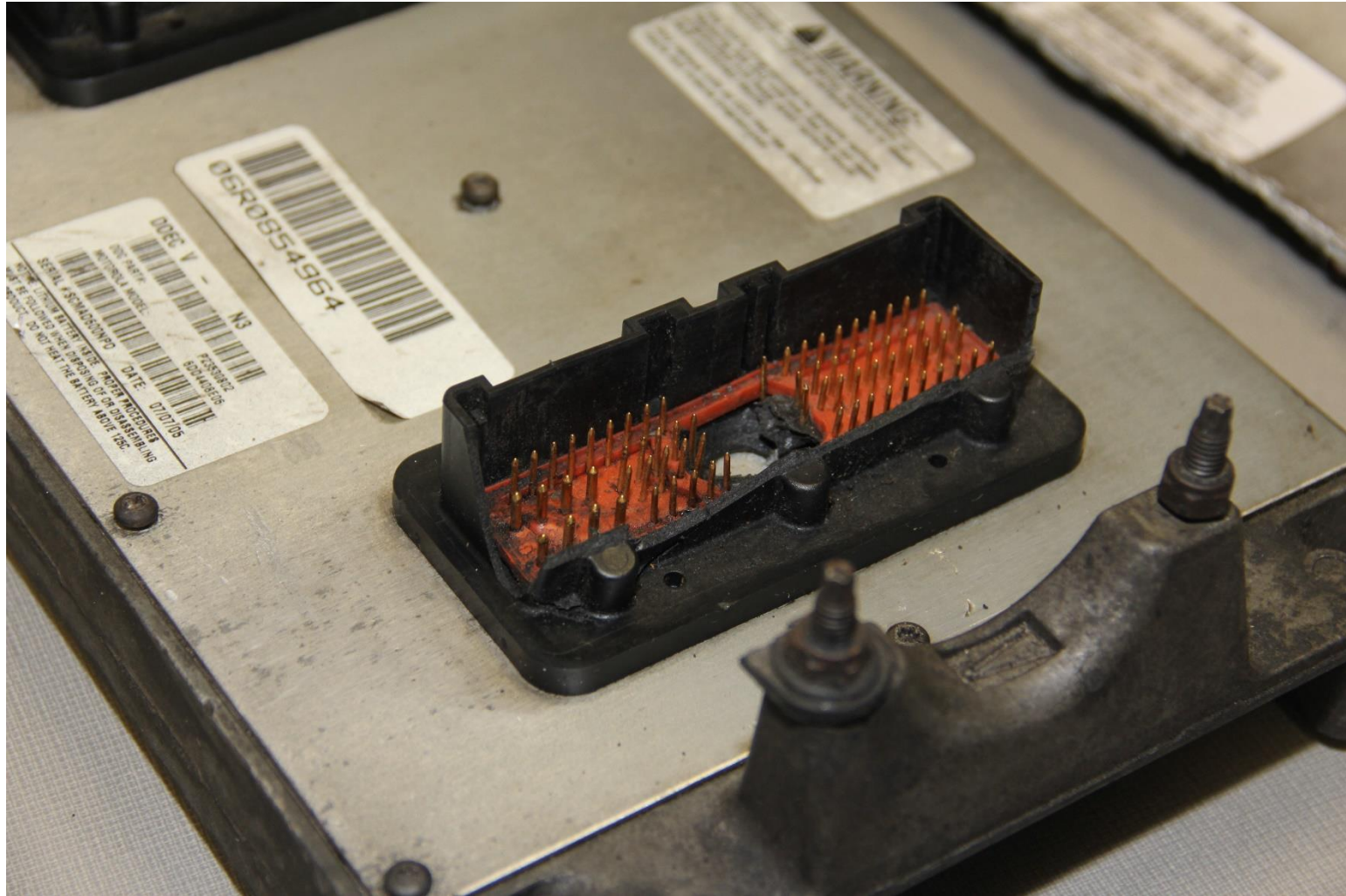
# But, sometimes it's not that easy.



The electrical system is compromised.



# Recovered Modules



# Attempted Download

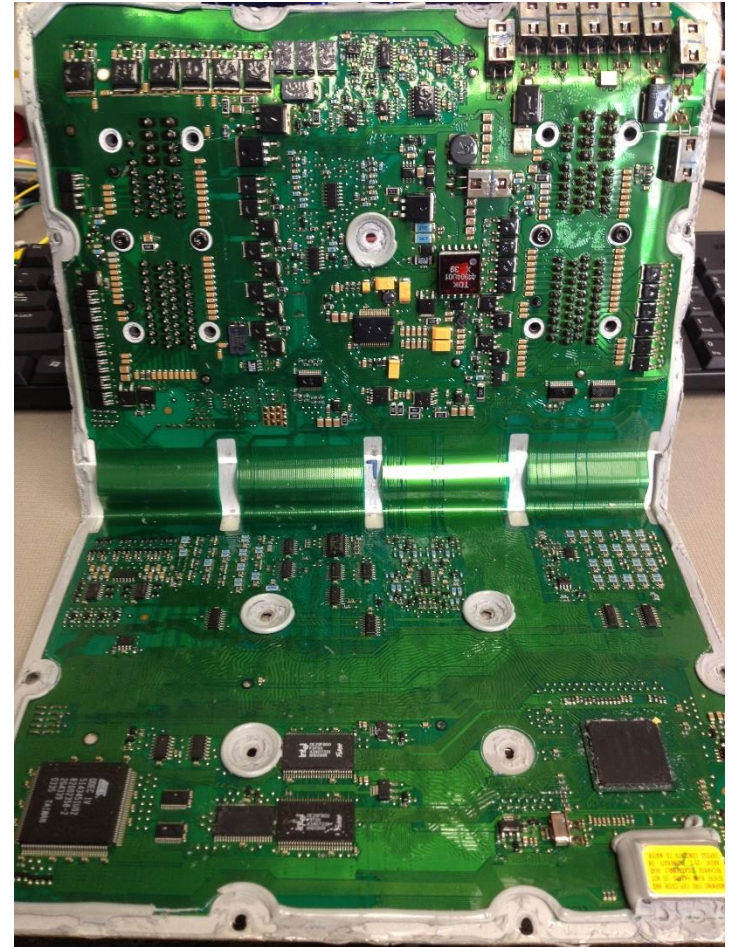
**Able to connect, but throws a J1708 Network Error??**

**This isn't covered in the manual...**

**Let's take a peek inside the module.**

# Chip Access

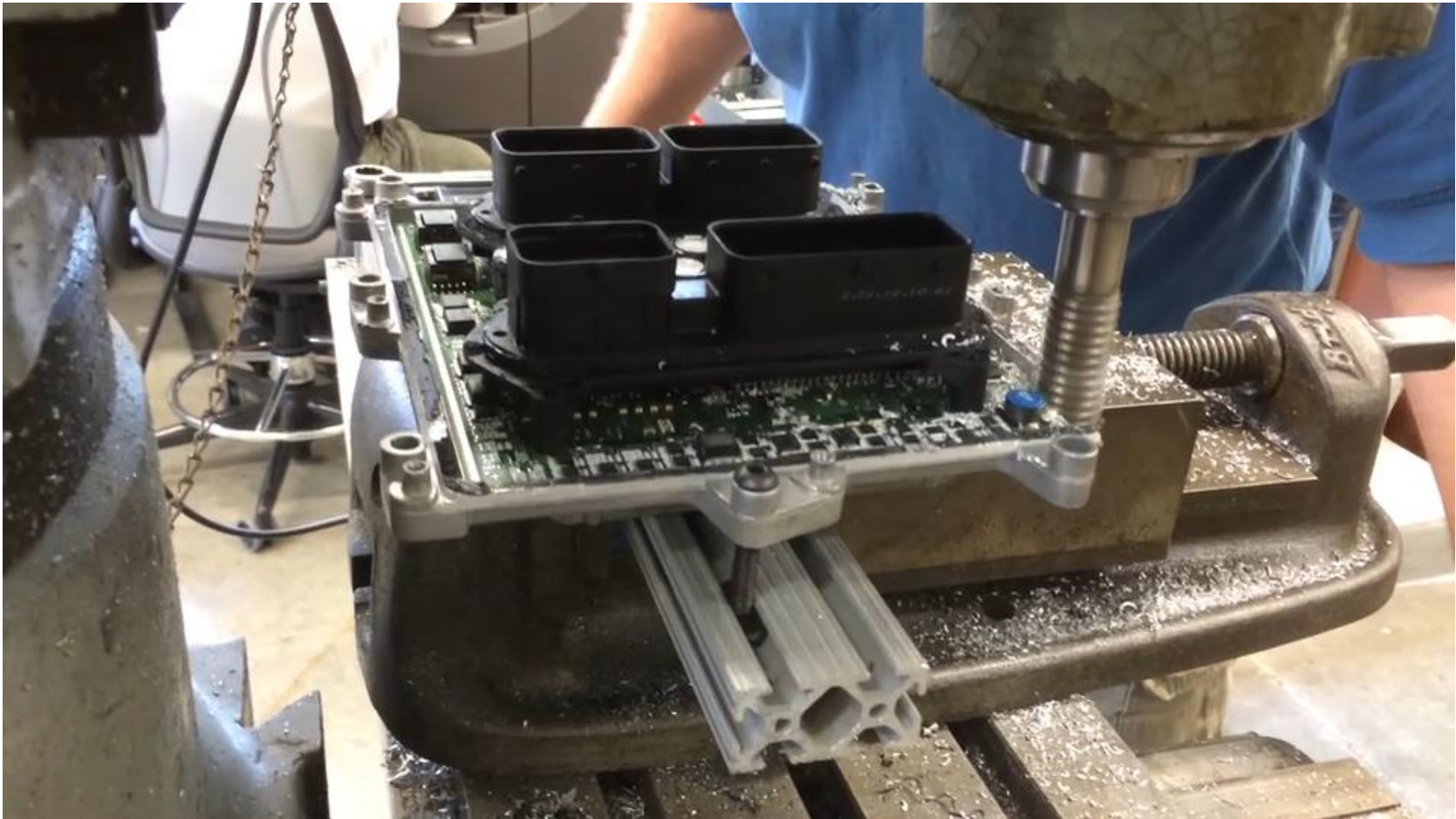
Accessing the chips the mechanical engineering way...





# Chip Access

## Drastic measures

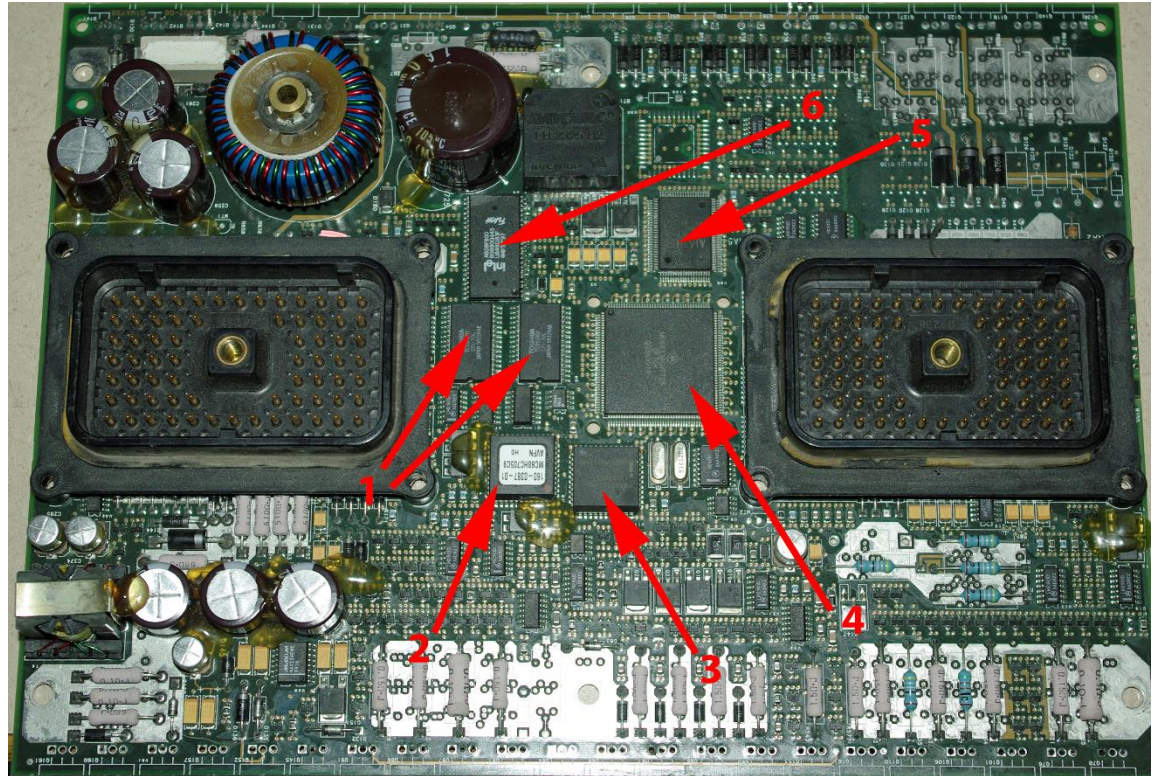




# Chip Identification

## CAT ADEM III

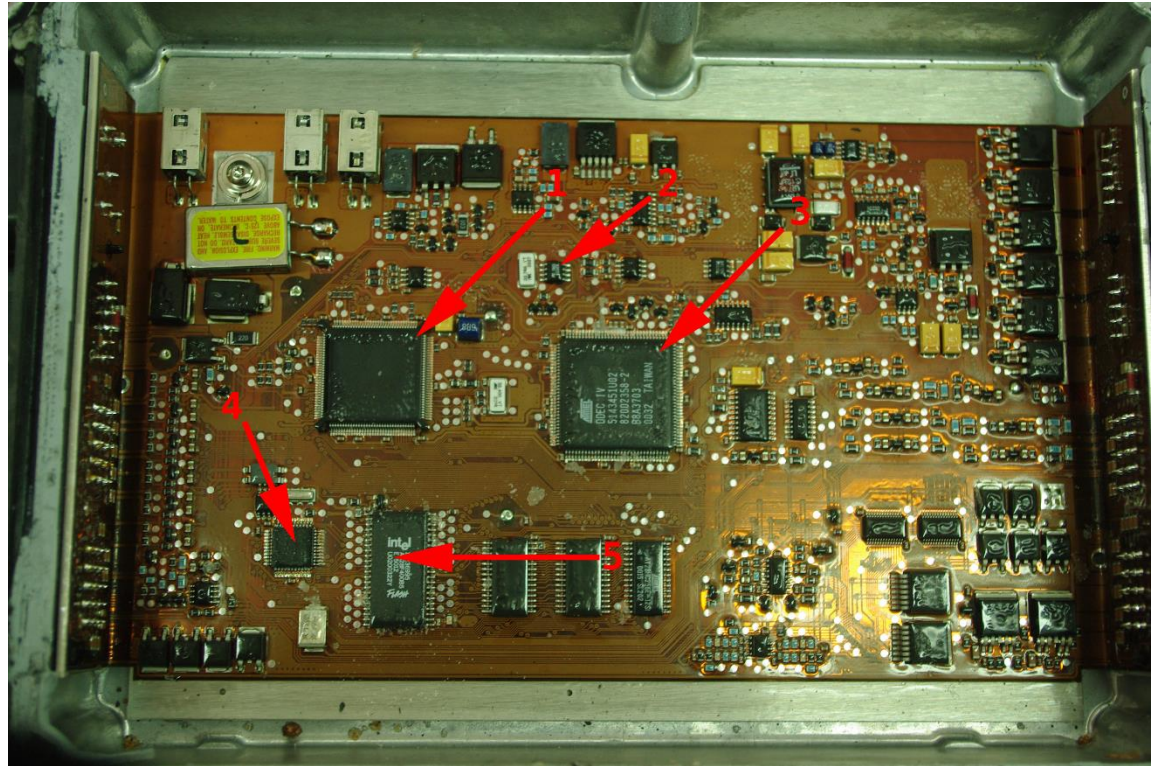
1. Toshiba SRAM
2. MC68HC705C9A 8-bit Microcontroller (EEPROM)
3. Intel CAN 2.0 Controller
4. MC68336 32-bit Microprocessor (note: Mask-Rom + SRAM)
5. AMI IC Branded Caterpillar, Presumed ASIC
6. Intel AB28F800 5V Flash Storage



# Chip Identification

## DDEC IV

1. MC68332 – 32-bit CPU
2. Real-time Clock controller
3. Presumed Custom ASIC controller
4. CAN Controller
5. Intel Flash Storage IC AB28F400

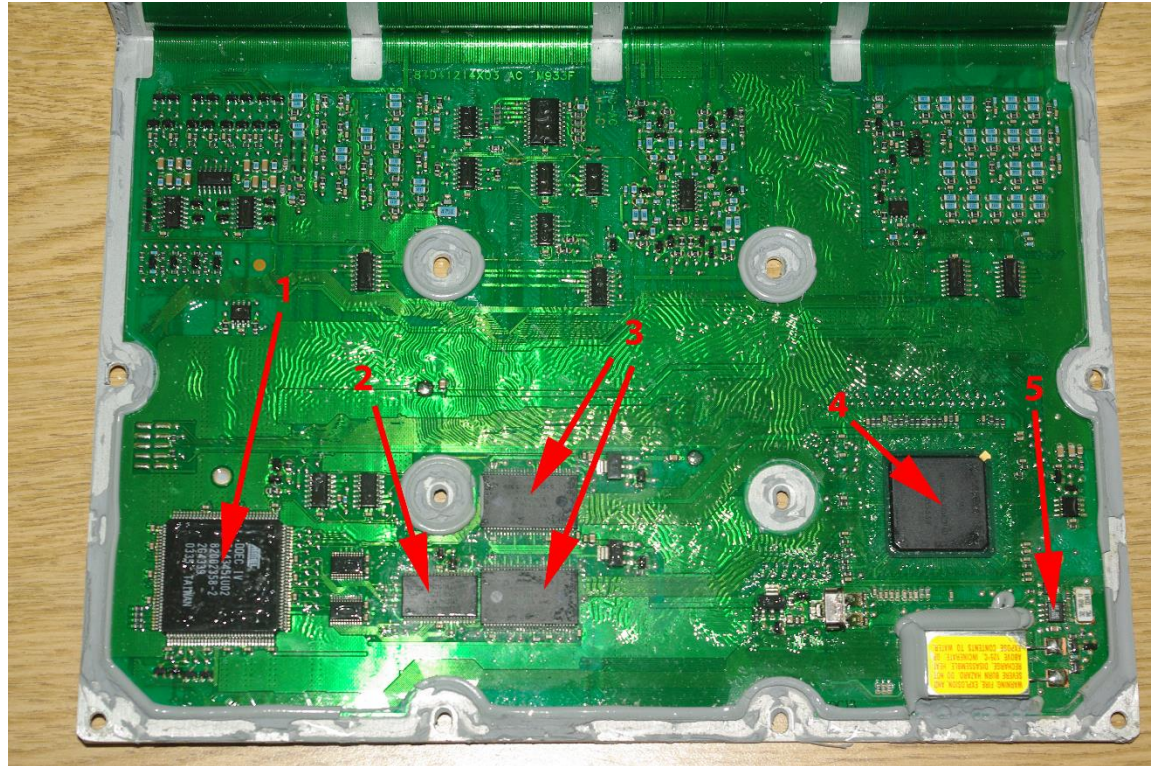




# Chip Identification

## DDEC 5

1. Custom ASIC – similar to later DDEC4
2. Cypress CY62137VLL SRAM
3. AMD AM29BL802CB Flash Storage ICs
4. MPC555LF8MZP40 32-bit CPU
5. Real-time clock IC EM V3020

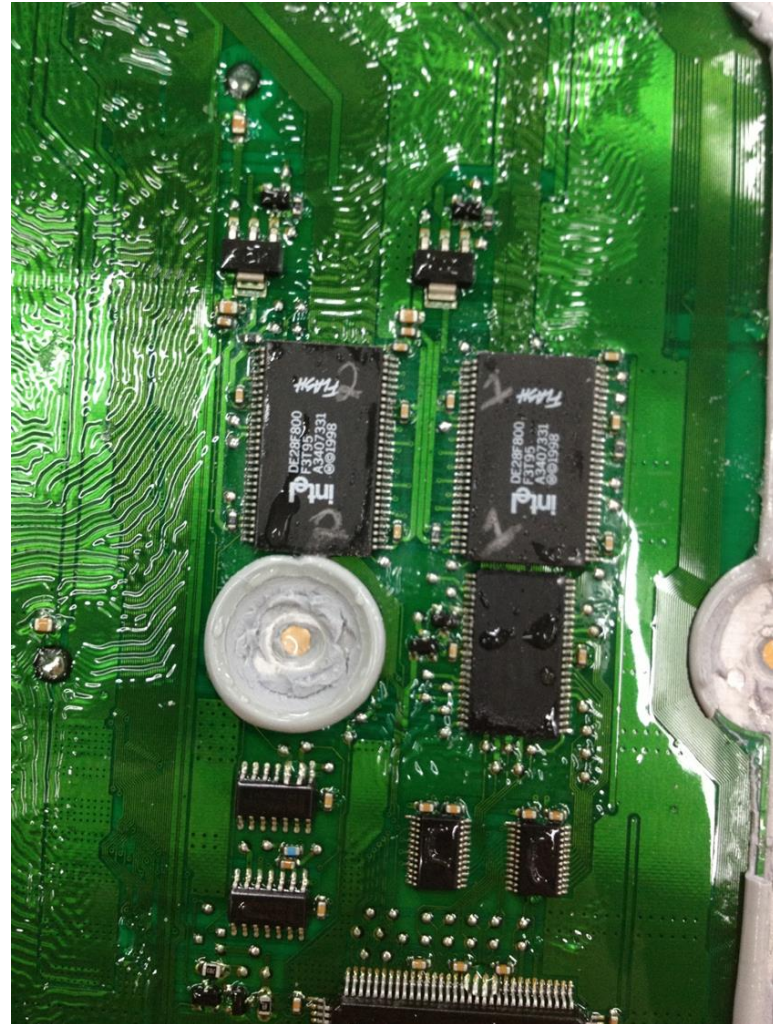


# Another DDEC 5

Data is stored on flash memory.

This DDEC5 used an Intel chip.

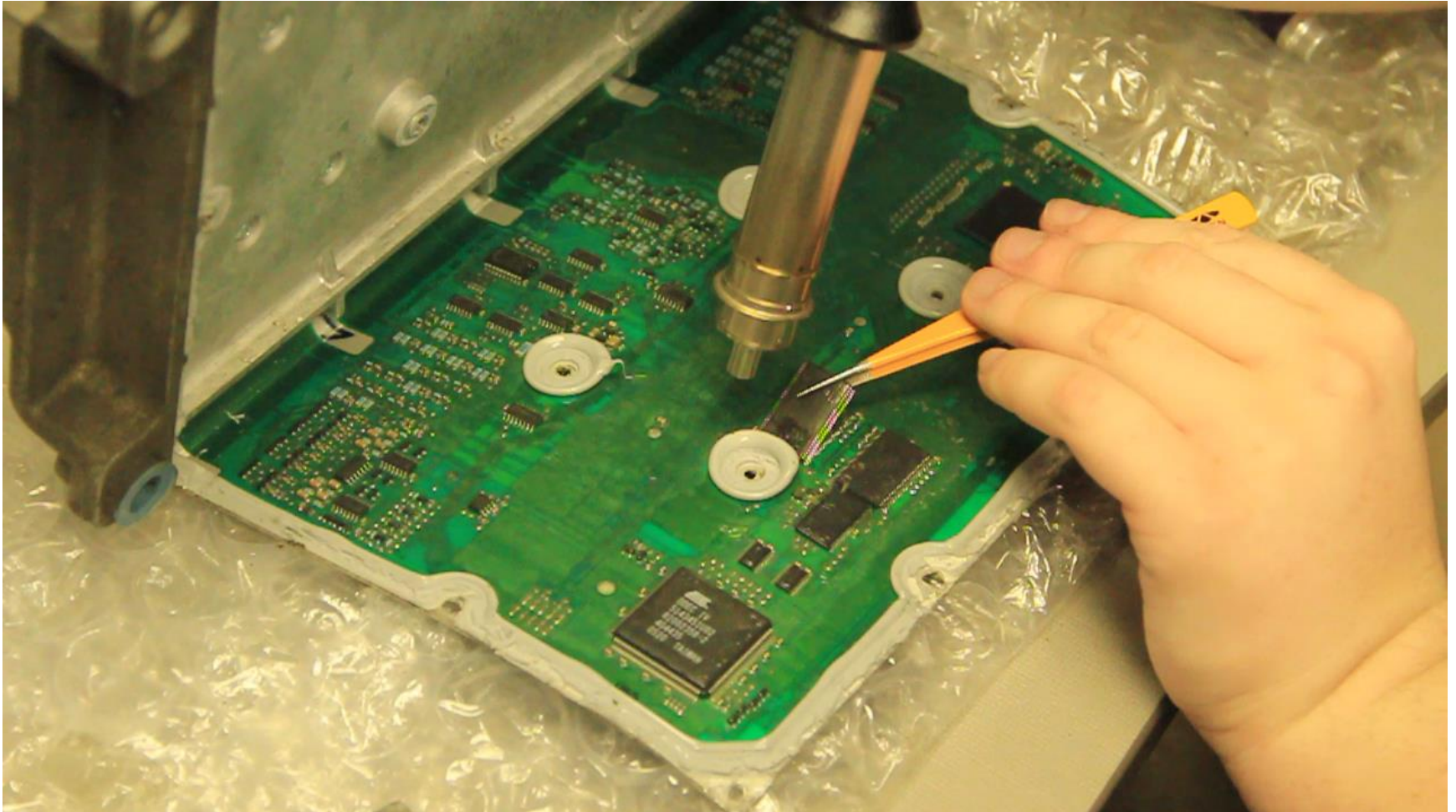
Each chip stores 1 megabyte





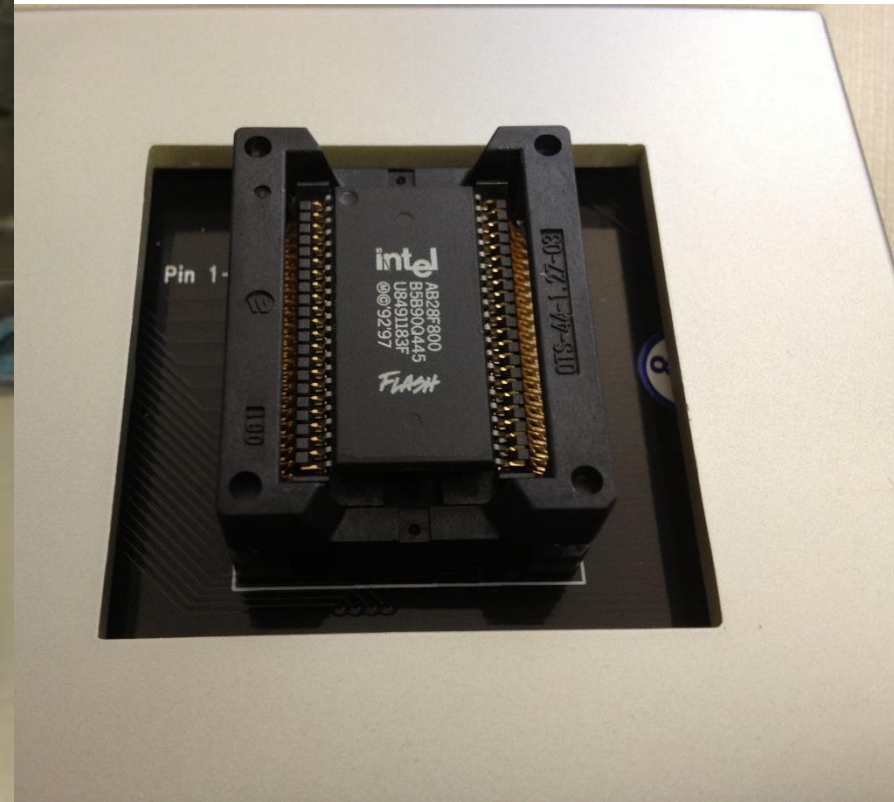
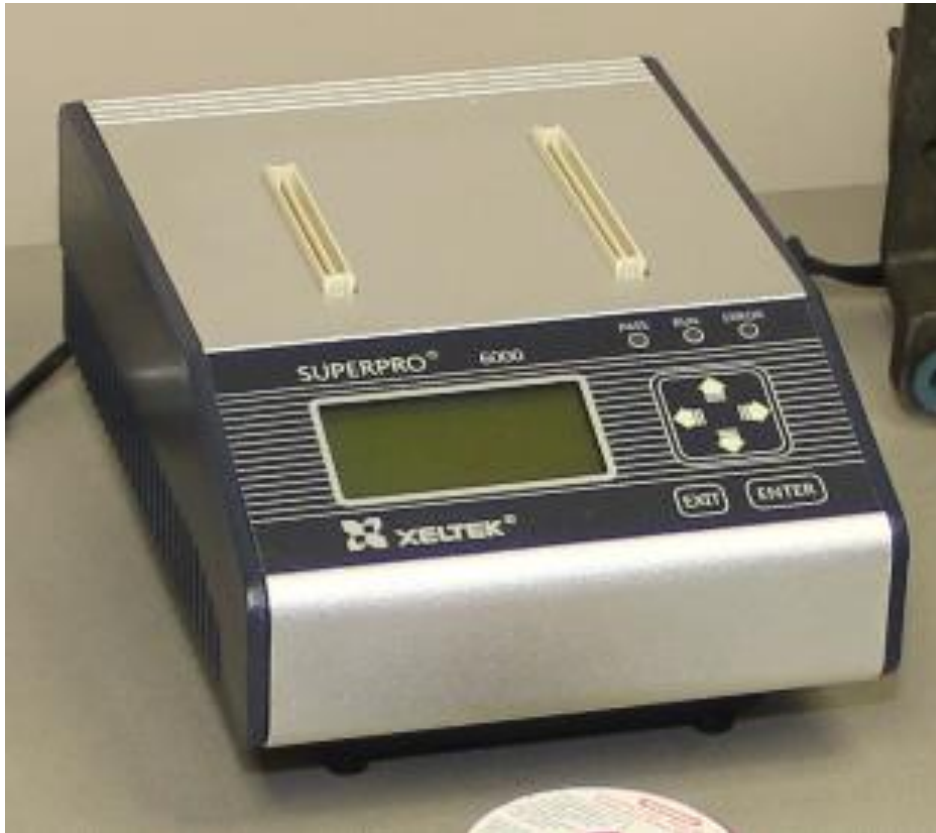
# Chip Removal

Hot air rework station to removing the flash memory



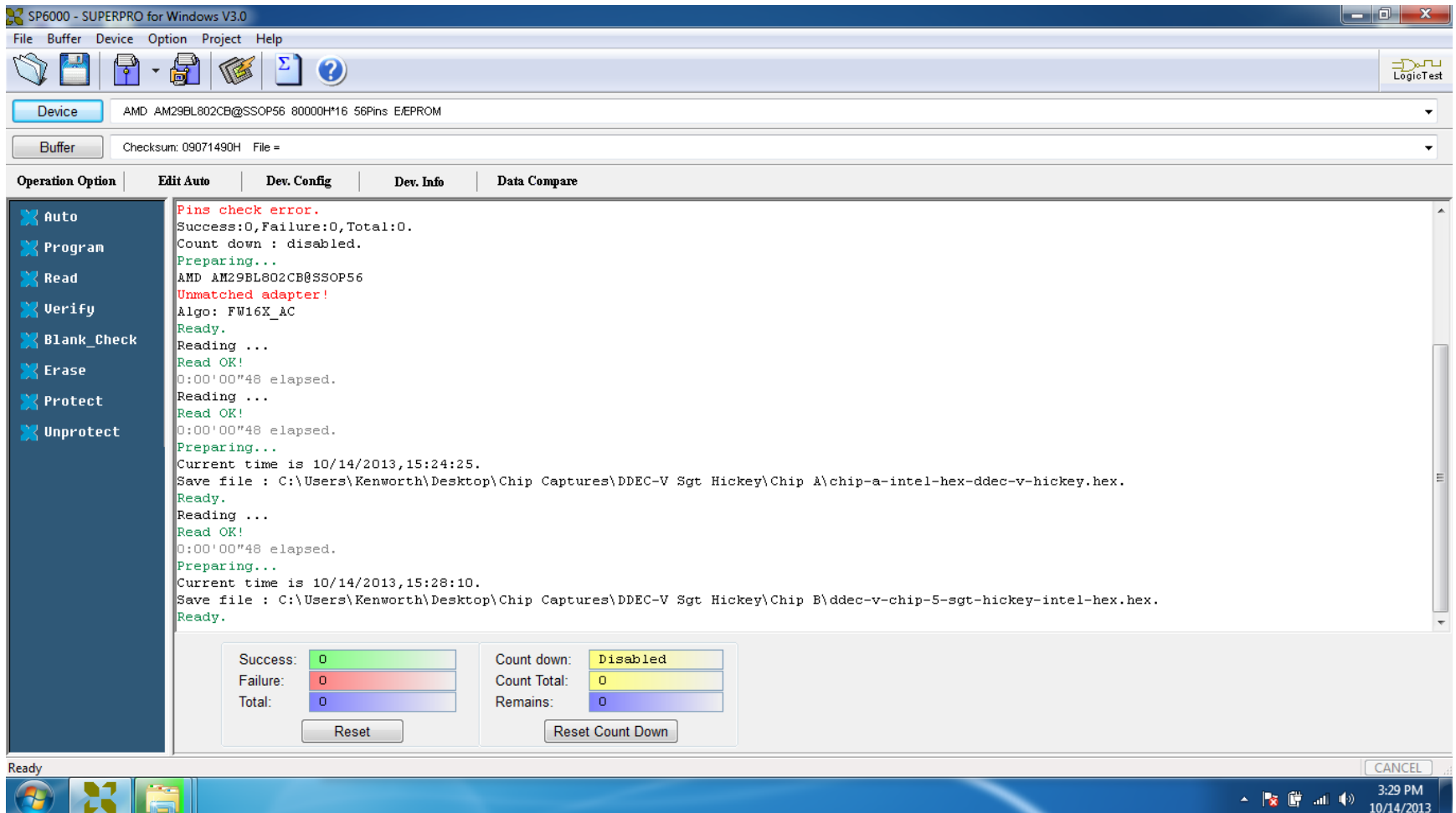
# Reading the chip memory

## Xeltek Super Pro 6000 Universal Chip Reader



# Software to run the Chip Reader

Output is a raw binary file (\*.hex)





## Results in a Hex editor (Now What?)

[illegible]



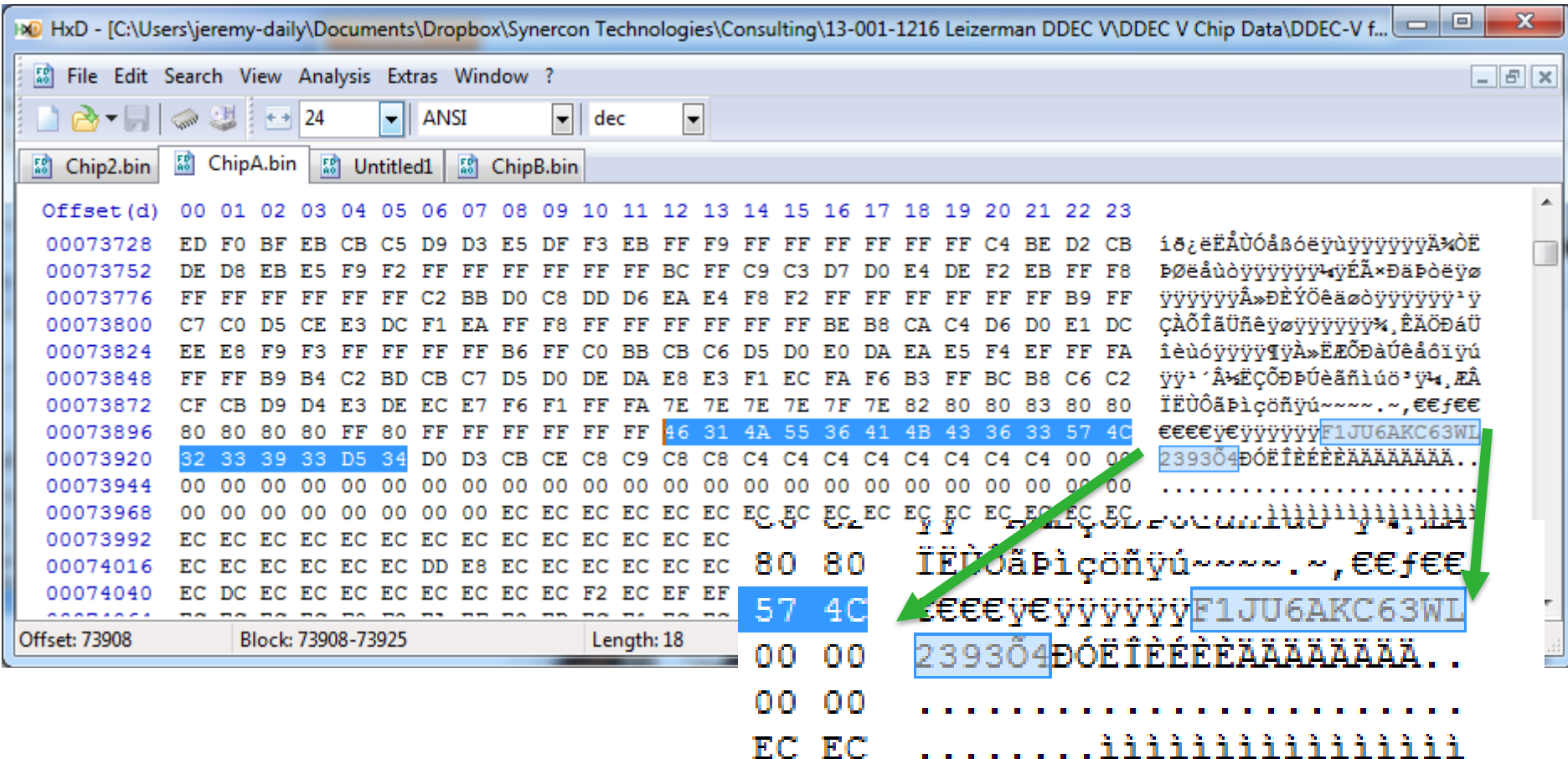
**NEED TO DECODE AND  
INTERPRET SOME DATA**

**ITS ALL BINARY (HEX)!!**

# Human Readable Hex

Letters and numbers are encoded using ASCII.

Strategy: Look for known ASCII, like VIN and Serial Number.



The screenshot shows the HxD hex editor interface. The main window displays a hex dump with columns for Offset (d), Hex, and ASCII. The hex dump is organized into rows of 16 bytes each. The ASCII column shows the interpretation of the hex values as text. A green arrow points to the hex value 57 4C, which corresponds to the ASCII characters 'F1JU6AKC63WL' in the adjacent column. The status bar at the bottom indicates the current offset, block, and length.

Offset (d)	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00073728	ED	F0	BF	EB	CB	C5	D9	D3	E5	DF	F3	EB	FF	F9	FF	FF	FF	FF	FF	C4	BE	D2	CB	
00073752	DE	D8	EB	E5	F9	F2	FF	FF	FF	FF	FF	BC	FF	C9	C3	D7	D0	E4	DE	F2	EB	FF	F8	
00073776	FF	FF	FF	FF	FF	FF	C2	BB	D0	C8	DD	D6	EA	E4	F8	F2	FF	FF	FF	FF	FF	B9	FF	
00073800	C7	C0	D5	CE	E3	DC	F1	EA	FF	F8	FF	FF	FF	FF	FF	FF	BE	B8	CA	C4	D6	D0	E1	DC
00073824	EE	E8	F9	F3	FF	FF	FF	B6	FF	C0	BB	CB	C6	D5	D0	E0	DA	EA	E5	F4	EF	FF	FA	
00073848	FF	FF	B9	B4	C2	BD	CB	C7	D5	D0	DE	DA	E8	E3	F1	EC	FA	F6	B3	FF	BC	B8	C6	C2
00073872	CF	CB	D9	D4	E3	DE	EC	E7	F6	F1	FF	FA	7E	7E	7E	7E	7E	82	80	80	83	80	80	
00073896	80	80	80	80	FF	80	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
00073920	32	33	39	33	D5	34	D0	D3	CB	CE	C8	C9	C8	C8	C4	C4	C4	C4	C4	C4	C4	00	00	
00073944	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00073968	00	00	00	00	00	00	00	00	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	
00073992	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	
00074016	EC	EC	EC	EC	EC	EC	DD	E8	EC	EC	EC	EC	EC	EC	EC	80	80							
00074040	EC	DC	EC	EC	EC	EC	EC	EC	EC	EC	EC	F2	EC	EF	EF	57	4C							

Offset: 73908      Block: 73908-73925      Length: 18

# 2 Byte Reversals

**The flash memory is used such that the bytes are stored with bytes that are reversed.**

**The VIN from the raw memory says:**

**F1 JU 6A KC 63 WL 23 93 ♦4**

**After swapping every 2 bytes, it becomes:**

**1FUJA6CK36LW32394**

**This is 18 bytes, but VINs are 17 characters**

**We can also find serial numbers (search for “R6”)**

# Simulated Data

**Issue: Still need to decode the data...**

**Strategy: Get an exemplar ECM and put a known speed record on it to find the Hard Brake and Last Stop Events.**

## DDEC® Reports - Hard Brake

#1

Print Date: 10/4/2013 1:23 PM  
DDC

Trip: 12/12/05 20:56:39 To 10/04/13 (PST)  
Vehicle ID: DDEC5-TEST  
Driver ID:  
Odometer: 532323.9 mi  
Engine S/N: 06R0760090

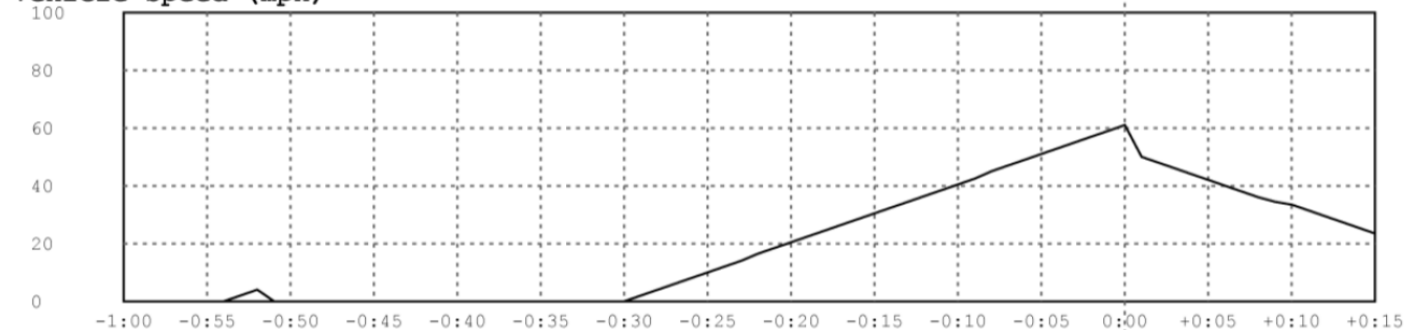
Trip Distance 473875.7 mi  
Trip Fuel 94635.50 gal  
Fuel Economy 5.01 mpg  
Avg Drive Load 46 %  
Avg Vehicle Speed 49.7 mph

Trip Time 20869:22:45  
Fuel Consumption 4.53 gal/h  
Idle Time 11330:35:08  
Idle Percent 54.29 %  
Idle Fuel 7417.38 gal

Incident Time: 10/04/13 7:14:18 (PST)

Incident Odometer: 532323.0 mi

Vehicle Speed (mph)



Engine RPM



# Get help from the Network logs

**DDEC Reports downloads data in 9 groups called data pages.**

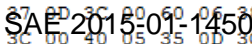
**Use J1587 Transport layer to reconstruct the network traffic.**

**\*.XTR file is close to a network log.**

**Borrowing from last year, we can map the XTR file contents to DDEC Reports elements. (2014-01-0495)**

**Enables pattern matching for data elements like Mileage and Times.**

## 26



# Last Stop Data

HxD - [C:\Users\jeremy-daily\Documents\Dropbox\DARPA CFT MKII\Chip Data\DDEC-V DARPA Dec13\Chip2.bin]

File Edit Search View Analysis Extras Window ?

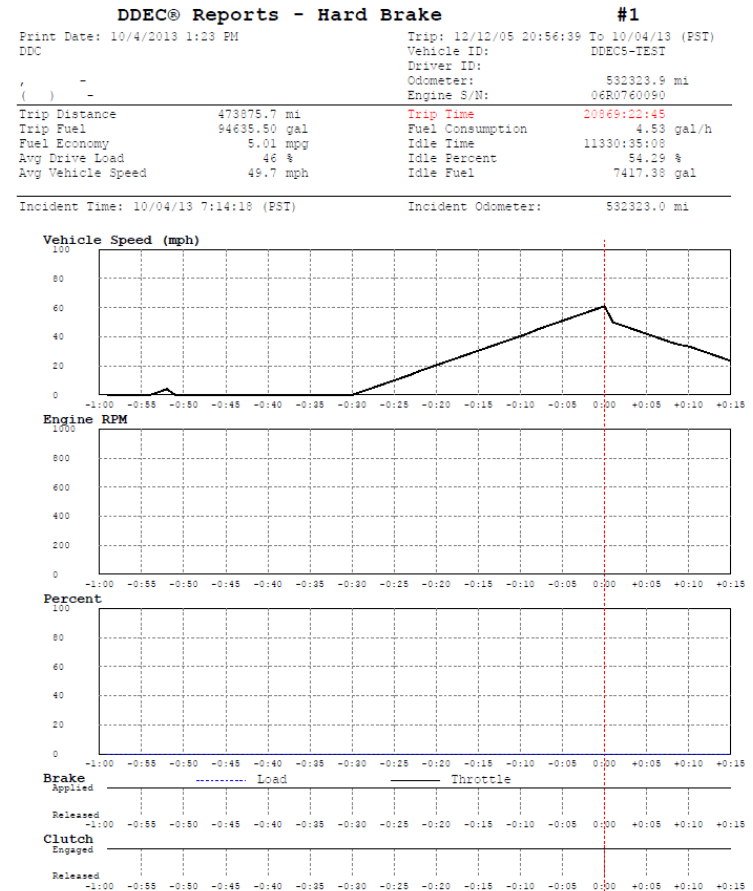
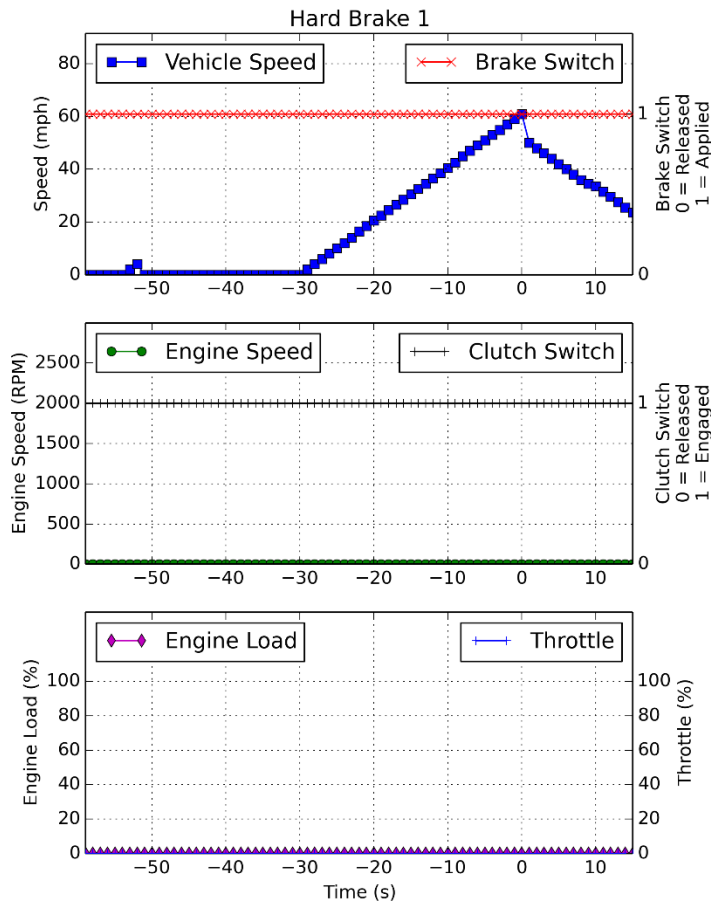
32 ANSI dec

Chip1.bin Chip2.bin ddec-v-chip-A-sgt-hickey-intel.hex ddec-v-chip-B-sgt-hickey-intel.hex cat-adem-III-test-intel-hex-hex DDEC5-DDEC Reports-baseline 100413123456AA.XTR

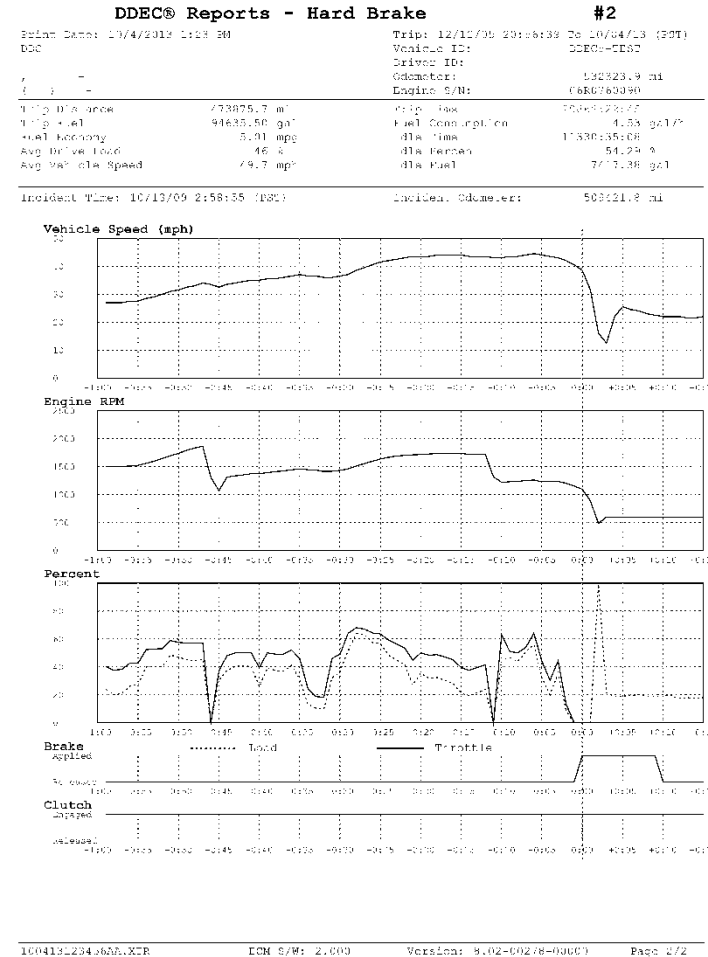
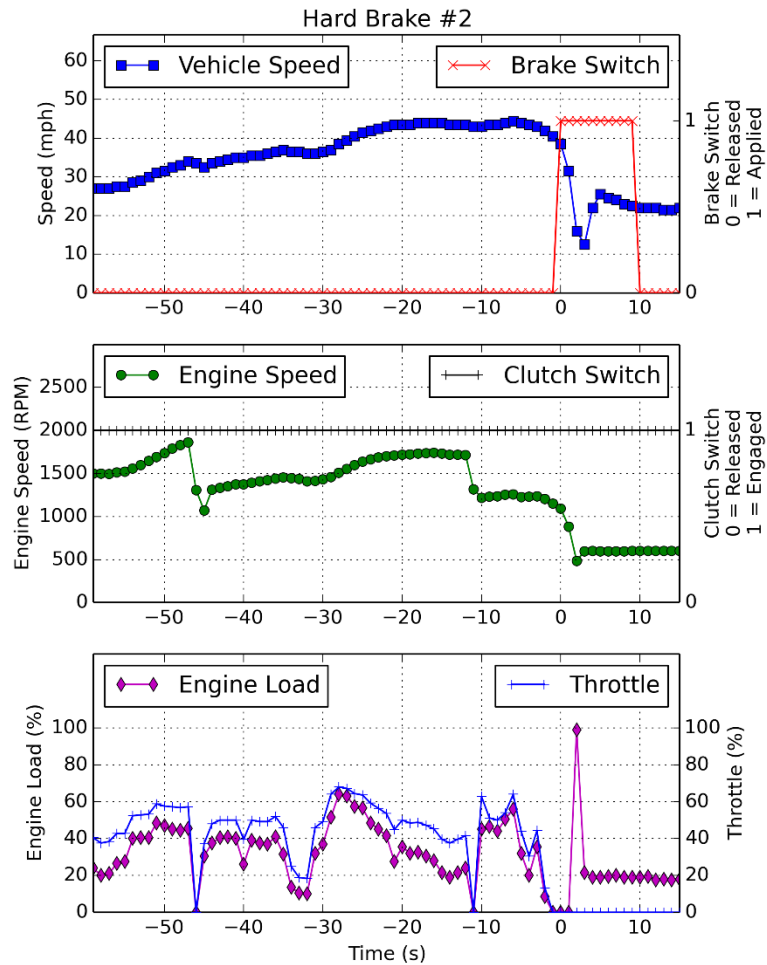
Offset (d)	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
00868800	60	00	00	00	00	1C	60	00	00	00	21	60	00	00	00	25	60	00	00	00	29	60	00	00	00	00	2D	60	00	00	00	00		
00868832	00	00	00	31	60	00	00	00	00	35	60	00	00	00	00	39	60	00	00	00	3D	60	00	00	00	00	41	60	00	00	00	00		
00868864	00	45	60	00	00	00	00	49	60	00	00	00	4D	60	00	00	00	51	60	00	00	00	55	60	00	00	00	00	00	00	00	00		
00868896	60	00	00	00	5E	60	00	00	00	00	62	60	00	00	00	00	66	60	00	00	00	6A	60	00	00	00	00	6E	60	00	00	00		
00868928	00	00	00	72	60	00	00	00	00	76	60	00	00	00	00	7A	60	00	00	00	00	7E	60	00	00	00	00	82	60	00	00	00		
00868960	00	5C	60	00	00	00	00	58	60	00	00	00	54	60	00	00	00	50	60	00	00	00	4C	60	00	00	00	00	00	00	00	00		
00868992	60	00	00	00	45	60	00	00	00	43	60	00	00	00	00	3F	60	00	00	00	00	3B	60	00	00	00	00	00	00	00	00	00		
00869024	00	00	00	33	60	00	00	00	00	2F	60	00	00	00	00	DA	4A	1A	EC	4E	14	A9	77	17	36	CA	90	17	36	8F	90	00	4B	
00869056	00	00	7C	D1	6E	17	30	36	40	65	75	17	28	36	40	5E	67	17	2A	36	40	60	A1	17	35	37	40	6B	CE	17	37	37		
00869088	40	6B	61	18	50	39	40	83	FE	18	51	3A	40	84	B7	19	51	3C	40	85	7A	1A	61	3E	40	93	2A	1B	5E	3F	40	90		
00869120	FC	1B	5A	41	40	8F	A5	1C	59	42	40	8E	1C	5B	44	40	8F	6A	14	00	43	40	00	B7	10	3D	41	40	5D	83	14	00		
00869152	4B	43	40	78	D8	14	51	44	40	7D	20	15	52	45	40	7D	76	15	50	46	40	7D	7B	15	34	46	40	63	C7	15	4E	47		
00869184	40	7D	0A	16	4B	47	40	7B	3A	16	4A	48	40	7B	8F	16	52	49	40	82	C3	16	3F	4A	40	73	9A	16	1B	49	40	3E		
00869216	7A	16	15	49	40	2F	0D	16	14	48	40	2E	23	16	40	48	40	73	5C	16	4A	49	40	7B	CF	16	67	4A	40	A0	9A	17		
00869248	80	4D	0A	2A	49	18	7E	4F	40	A8	F2	18	73	51	40	A1	9A	19	71	53	40	9F	07	1A	61	54	40	94	65	1A	5A	55		
00869280	80	8D	93	1A	53	56	40	86	B2	1A	37	57	40	7D	DD	1A	47	57	40	7D	F6	1A	40	57	40	79	0E	1B	41	58	40	7A		
00869312	28	1B	3D	58	40	76	35	1B	38	58	40	71	16	1B	2B	58	40	63	E2	1A	26	57	40	5E	DC	1A	2B	57	40	63	C9	1A		
00869344	30	57	40	68	91	14	00	56	40	00	11	13	5A	56	40	9D	39	13	5D	57	40	80	58	13	58	57	40	7D	92	13	65	58		
00869376	40	87	B2	13	70	59	40	A0	35	13	40	58	40	6E	3C	13	28	57	40	4C	50	13	47	56	40	6F	CF	12	11	54	40	21		
00869408	FB	11	00	51	40	00	1C	11	00	4D	00	00	CD	0D	00	3F	60	00	97	07	C6	20	60	00	55	09	2B	19	60	00	5C	09		
00869440	26	2C	60	00	58	09	26	33	60	00	58	09	27	31	60	00	58	09	28	30	60	00	5A	09	26	2E	60	00	00	09	26	2D		
00869472	60	00	00	09	26	2C	40	00	5E	09	27	2C	40	00	61	09	23	2C	40	00	5E	09	24	40	00	5E	09	23	2B	40	00	00		
00869504	5B	09	24	2C	40	00	00	00	00	A1	04	23	C1	6E	13	82	9D	2E	EF	12	9D	2E	B4	12	00	4B	00	00	00	00	00	00	00	
00869536	00	00	40	00	00	00	00	00	00	40	00	00	00	00	00	00	00	00	00	00	00	00	87	02	AD	00	40	00	0B	0C	7D	00		
00869568	00	40	B3	0D	42	00	40	AA	0D	42	00	40	00	8F	0D	43	00	00	86	0D	43	00	00	82	0D	40	00	82	0D	40	00	40	00	
00869600	7A	0D	3F	00	40	00	71	0D	3F	00	40	00	61	0D	40	00	00	86	0D	3C	02	40	00	52	0D	40	00	40	00	00	46	0D	00	
00869632	04	05	00	00	48	0D	3C	05	40	00	3F	0D	3C	06	40	00	41	0D	39	06	40	00	37	0D	3C	06	40	00	38	0D	3A	06	00	
00869664	40	00	37	0D	3B	07	40	00	37	0D	3C	07	00	35	0D	35	0D	3C	07	00	32	0D	3C	06	40	00	35	0D	3C	05	40	00	00	
00869696	00	0C	8A	07	40	00	45	0D	4B	08	40	0F	FC	0E	59	09	00	61	24	13	4F	0C	00	80	36	16	46	0E	00	77	85	16	00	
00869728	3E	0E	00	70	95	14	25	0D	00	4B	EC	0F	0C	00	00	9B	0D	64	0C	5B	03	10	56	0F	00	7B	B6	12	4E	1F	00	00		
00869760	00	84	36	14	4B	11	00	74	4A	15	47	12	00	75	76	15	3D	12	0D	6D	F4	14	35	12	00	65	B3	14	38	12	00	65	00	
00869792	03	14	18	11	00	64	CB	13	11	00	66	E0	13	3F	11	00	69	F0	13	3C	11	00	68	EF	13	3B	11	00	67	2C	14	00	00	
00869824	38	11	00	64	2B	14	38	11	00	64	17	14	38	11	00	64	EB	13	11	00	5E	35	14	32	11	00	5F	1A	14	2F	11	00	00	
00869856	00	5C	B9	13	31	11	00	5B	69	13	31	11	00	5B	87	12	2E	10	00	53	6B	12	3B	10	00	62	10	13	48	10	00	6F	00	
00869888	4F	13	3D	11	00	69	CD	13	3C	11	00	67	F0	14	3F	12	00	6D	82	15	3C	12	00	6A	CB	15	39	13	00	6A	1B	00	00	
00869920	52	13	00	66	9C	16	37	13	00	6B	10	17	38	14	00	6B	96	17	3F	14	00	74	17	18	3D	15	00	72	E4	17	00	00	00	
00869952	00	6D	F2	16	29	14	00	5E	D1	16	36	14	00	6A	75	16	2F	13	00	61	54	16	35	13	00	68	8A	15	2B	00	00	00	00	
00869984	11	15	28	12	00	52	04	14	21	11	00	40	76	12	23	10	00	3F	BC	10	2B	0E	00	3E	37	0F	36	0D	00	00	00	00	00	
00870016	31	0A	40	00	CB	0C	31	09	40	00	C1	0C	31	08	40	00	BD	0C	34	08	40	00	9C	0C	66	09	40	00	00	00	00	00	00	00
00870048	40	00	B5	0C	33	0A	40	00	80	0C	37	09	40	00	BB	0C	35	09	40	00	B3	0C	32	08	40	00	B6	0C	31	00	00	00	00	00
00870080	A7	0C	35	06	00	A6	0C	36	04	00	AE	0C	32	00	00	00	AC	32	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00870112	3F	00	40	00	9E	0C	38	00	40	00	8E	0C	3E	00	00	00	93	0C	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00870144	00	00	8A	0C	3A	00	00	00	91	0C	35	00	00	00	00	00	FF	05	C8	00	00	00	53	01	A5	00	00	00	00	00	00	00	00	
00870176	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00870208	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00870240	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00870272	00	00	66	BA	2E	01	1D	28	49	05	7B	1F	00	00	E4	0F	AD	05	6A	68	03	00	BD	38	8F	00	46	1A	00	00	00	00	00	
00870304	4E	14	22	17	0E	00	DF	F1	50	02	A3	55	08	00	8C	C6	DA	04	1A	EC	11	2A	2C	B5	0C	00	BA	E3	00	00	00	00	00	
00870336	8A	02	77	96	0D	00	90	9E	00	00	00	00	00	6C	87	00	00	2F	00	31	3C	7E	88	00	00	10	F0	B4	00	00	00	00	00	
00870368																																		



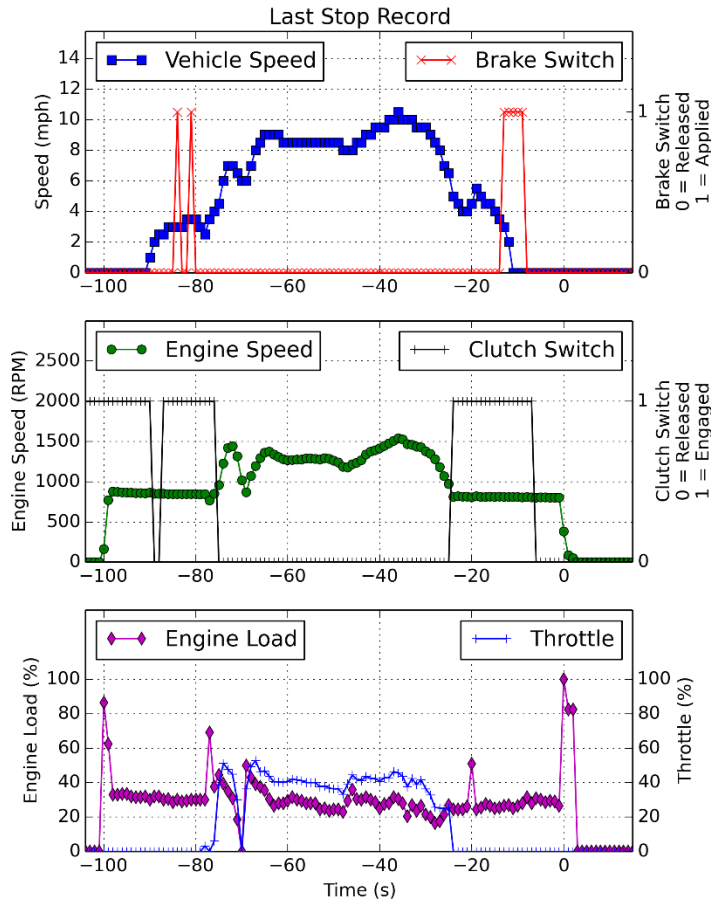
# Hard Brake 1 Comparison



# Hard Brake 2 Comparison

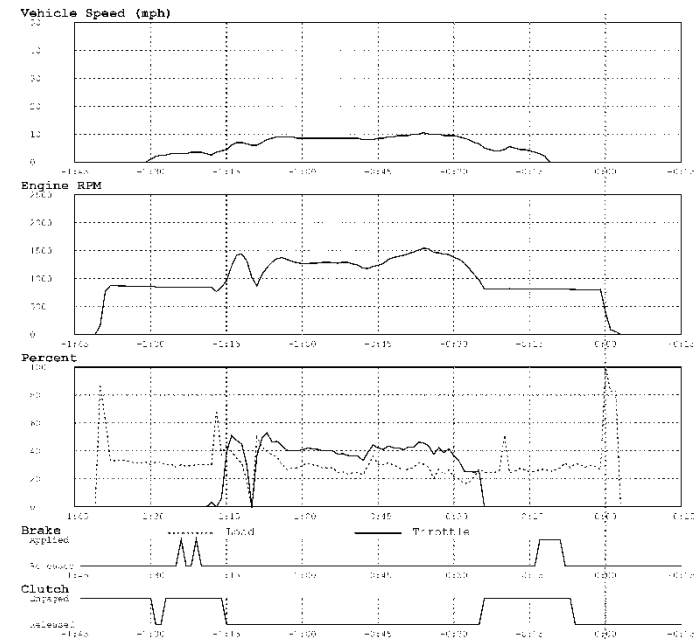


# Last Stop Comparison



## DDEC® Reports - Last Stop Record

Report Date: 10/4/2013 1:03 PM DDC		Trip: 12/10/00 20:00:00 To 10/04/13 (201) Vehicle ID: DDEC0-CE02 Driver ID:	
Trip Distance: 73875.7 mi Trip Fuel: 94435.58 gal Fuel Economy: 5.91 mpg Avg Drive Load: 46 % Avg Max Clutch Speed: 79.7 mph		Trip Time: 7608:22:47 Fuel Consumption: 4.55 gal/hr dta Time: 17330:35:08 dta Percent: 54.24 % dta Fuel: 7772.08 gal	
Last Stop Line: CL/177.0 5:33:00 (RS1)		Last Stop Odometer: 538322.8 mi	



100413L234360L.XDR

ICM S/W: 2.000

Version: 8.02-00278-0000

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# Daily Engine Usage

## DDEC® Reports - Daily Engine Usage

Print Date: 8/21/2013 11:08 AM

Date Range: 01/18/07 To 01/07/00 (EST)

University of Tulsa

800 S. Tucker Dr

Tulsa, OK 74104

(918) 631-3056

Vehicle ID:

TIB DDEC4

Driver ID:

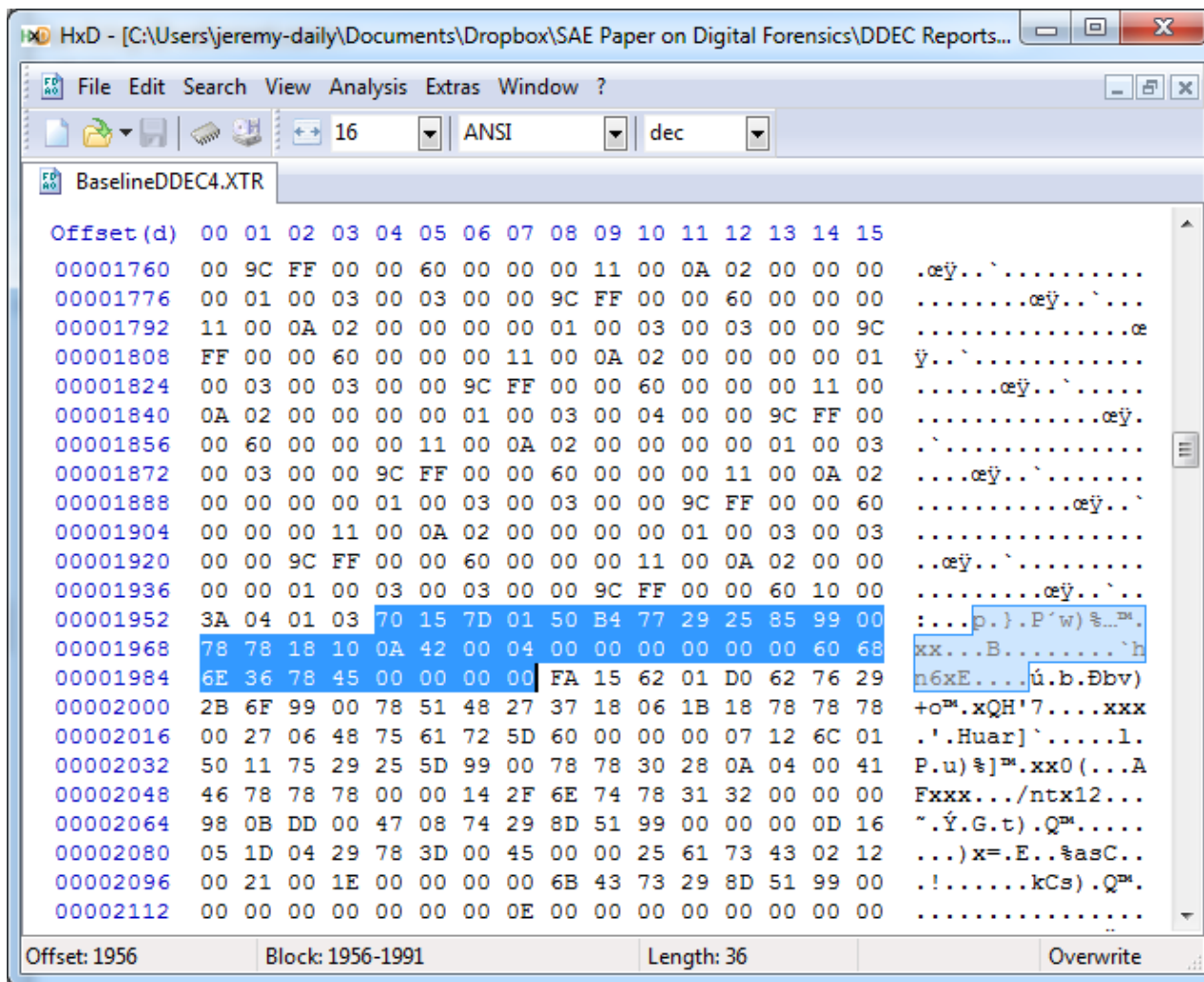
Engine S/N:

06R0499534

Date:	1/18/2007
Start Time:	00:00:00 EST
Odometer:	1006109.00 mi
Distance:	548.80 mi
Fuel:	95.25 gal
Fuel Economy:	5.76 mpg
Average Speed:	59.54 mph

Total (hh:mm)	09:13	06:00	08:47
Hour (EST)	Drive (min)	Idle (min)	Off (min)
00:00-02:00	0	120	0
02:00-04:00	0	120	0
04:00-06:00	96	24	0
06:00-08:00	104	16	0
08:00-10:00	110	10	0
10:00-12:00	54	66	0
12:00-14:00	120	0	0
14:00-16:00	69	4	47
16:00-18:00	0	0	120
18:00-20:00	0	0	120
20:00-22:00	0	0	120
22:00-24:00	0	0	120

# Daily Engine Usage Log Data - .XTR file



# Determining Data Meaning in the

## Interpreted Data

Bytes Sequence	Hex Value (s)	Decimal	LSB Value	Meaning	Value
0-1	70 15	5488	0.1 mile	Distance	548.8 miles
2-3	7D 01	381	0.25 gal	Fuel	95.25 gallons
4-7	50 B4 77 29	695710800	1 sec from epoch	Start Time	17 Jan 2007 at 23:00:00 CST
8-11	25 85 99 00	10061093	0.1 mile	Odometer	1006109.3 miles
12-23	78 78 18 10 0A 42 00 04 00 00 00 00	120 120 24 16 10 66 0 4 0 0 0 0	1 Minute	Idle Time	Same as Decimal
24-35	00 00 60 68 6E 36 78 45 00 00 00 00	0 0 96 104 54 120 69 0 0 0 0	1 Minute	Drive Time	Same as Decimal

**All other data are calculated.**

**Interestingly, the .XTR file contains minutes, but the chip memory contains seconds.**



# Chip Memory Contents

XTR file has 36 Bytes for 1 day in the Daily Engine Usage Log.

However... The memory record containing the Daily Engine Usage data is contained in a circular 30-day buffer with each day holding 66 bytes.

This was determined by locating the odometer readings since the MSB's were the same. There were 66 bytes from one 4-byte odometer reading to another.

Data Description	Unit	Location and sequence	Word Size (LSB last)	LSB Value	Example
Start Time Stamp	Seconds	1, 0, 3, 2	U32	1	Figure 16
Odometer	Miles	5, 4, 7, 6	U32	1/640	Figure 17
Distance Traveled	Miles	9, 8, 11, 10	U32	1/640	Figure 18
Fuel Used	Gallons	12, 13	U16	0.125	Figure 19

# Daily Engine Usage Time

**XTR file = 24 bytes**

**Memory Chips = 48 bytes, so there twice the bytes that are in memory but not transmitted on the network.**

**XTR file has minutes coded as single bytes (0-255)**

**Memory stores times in seconds as 2 bytes (16 bit) (0-65536)**

**Only Drive time and Idle time in each 2 hour block are recorded in memory.**

**Drive + Idle seconds in memory contents did not always sum to 7200 seconds ( 2 hours)**

# Decoded Daily Engine Usage Log

Start Date	Start Time	Odometer	Distance	Fuel	Total Daily Time		00:00-02:00		02:00-04:00		04:00-06:00		06:00-08:00		08:00-10:00
Central Standard Time		Miles	Miles	Gallons	Idle (HH:MM)	Drive (HH:MM)	Idle	Drive	Idle	Drive	Idle	Drive	Idle	Drive	Idle
Thu, 07 Jan 2010	02:00:00AM	530196.8	346.5	76.750	15:23	08:04	82:33	26:49	65:43	54:17	20:38	99:22	55:49	41:00	00:44
Fri, 08 Jan 2010	02:00:00AM	530543.3	470.0	111.625	13:60	09:58	120:00	00:00	108:47	11:12	00:00	120:00	05:12	114:48	00:00
Sat, 09 Jan 2010	02:00:00AM	531013.3	506.1	111.750	13:57	09:43	120:00	00:00	120:00	00:00	49:13	49:57	03:28	116:33	116:25