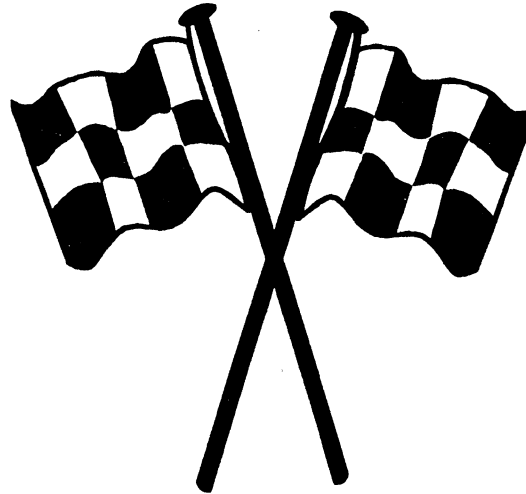




DAYTONA PROGRAM REVIEW AND TECHNICAL TRAINING

*By Bob Dean
JUNE 1994*

INTRODUCTION



A good deal of the Hardware and Firmware for Daytona has been leveraged off of UZI, However there are some very important differences which we feel make Daytona a better and even more reliable performer.

AGENDA

- **Design Elements**
- **Differences/Similarities with UZI**
- **Key Components**
- **Hardware & Firmware Overview**
- **Key Product Features**
- **Questions and Answers**
- **Visit to Lab**

VOCABULARY

- **SCSI----- Small Computer Sys Interface**
- **AT ----- AT/IDE Interface**
- **Diags----- Diagnostics**
- **UPT ----- Universal Process Test**
- **MTBF ----- Mean Time Between Failure**
- **TPI ----- Tracks Per Inch**
- **BPI ----- Bits Per Inch**

DESIGN ELEMENTS

DAYTONA

- **RPM ----- 4500**
- **TPI ----- 3100**
- **TPS ----- 1704**
- **SECT/TK ----- 54- 92**
- **BPI ----- 71,600**
- **BUF SIZE ----- 96 KB/S**
- **XFER RATE ----- 11 Mb/S**
- **LATENCY ----- 6.66 MS**

UZI

- 3600**
- 2529**
- 1395**
- 44 - 75**
- 57,812**
- 96 KB/S**
- 4 Mb/S**
- 8.3 MS**

Differences / Similarities

Differences

- **Higher TPI/FCI than UZI**
- **Does not recal like UZI**
- **Adaptive Read Ch ***
 - **Optimized Write Current**
 - **Window Centering**
 - **BW and Equalization Adj.**
- **4500 vs 3600 rpm UZI**
- **Faster Latency**
- **UPT Test Process**
- **Full List Of Diag. CMDS**
 - **See Attachment**

Similarities

- **Components Face Down**
- **Read Channel ***
- **Seek Times (17 MS Avg)**
- **Code is in Disk Ware**
- **Multiple-Zone Recording**
- **96 Kb/s Cache**
- **Power Management**
- **ECC on the Fly**
- **Low Profile**

Key Components

HEAD DISK ASSEMBLY (See Isometric View)

- » Head Stack Assembly
- » Pre Amp PCC
- » Latch Assembly
- » Actuator (VCM)
- » Spindle Motor
- » Disk Stack

PCBA

- » Printed Circuit Board
- » Connectors (SCSI or AT)
- » Components (See Hardware)

Hardware Overview

PCBA

See Block Diagram

- **Arizona Read Write IC----- Nat 84910**
 - Most Servo and All Read/Write Functions
- **Koni Interface/Control IC ----- ~~AT&T~~ custom**
 - Individual SCSI and AT Interfaces
- **CPU Microprocessor IC ----- NEC 78352**
- **Peach Fuzz IC ----- TLS2204A**
 - VCM Driver
 - Spindle Driver
- **Pre Amp (In HDA) ----- SSI 2020 R**

Firmware Overview

DAYTONA

- **Adaptive Rd Segmentation**
- **1 to 4 Read Segments**
- **Rd Segment size 16 to 64K**
- **Allows Partial Cache Hits
or anticipatory prefetch**
- **UPT Test Process**

UZI

Fixed Segmentation
1 or 2 Read Segments
Read Segment Fixed at 32K
**No Partial Hits or
Anticipatory Prefetch**
LPT Test Process

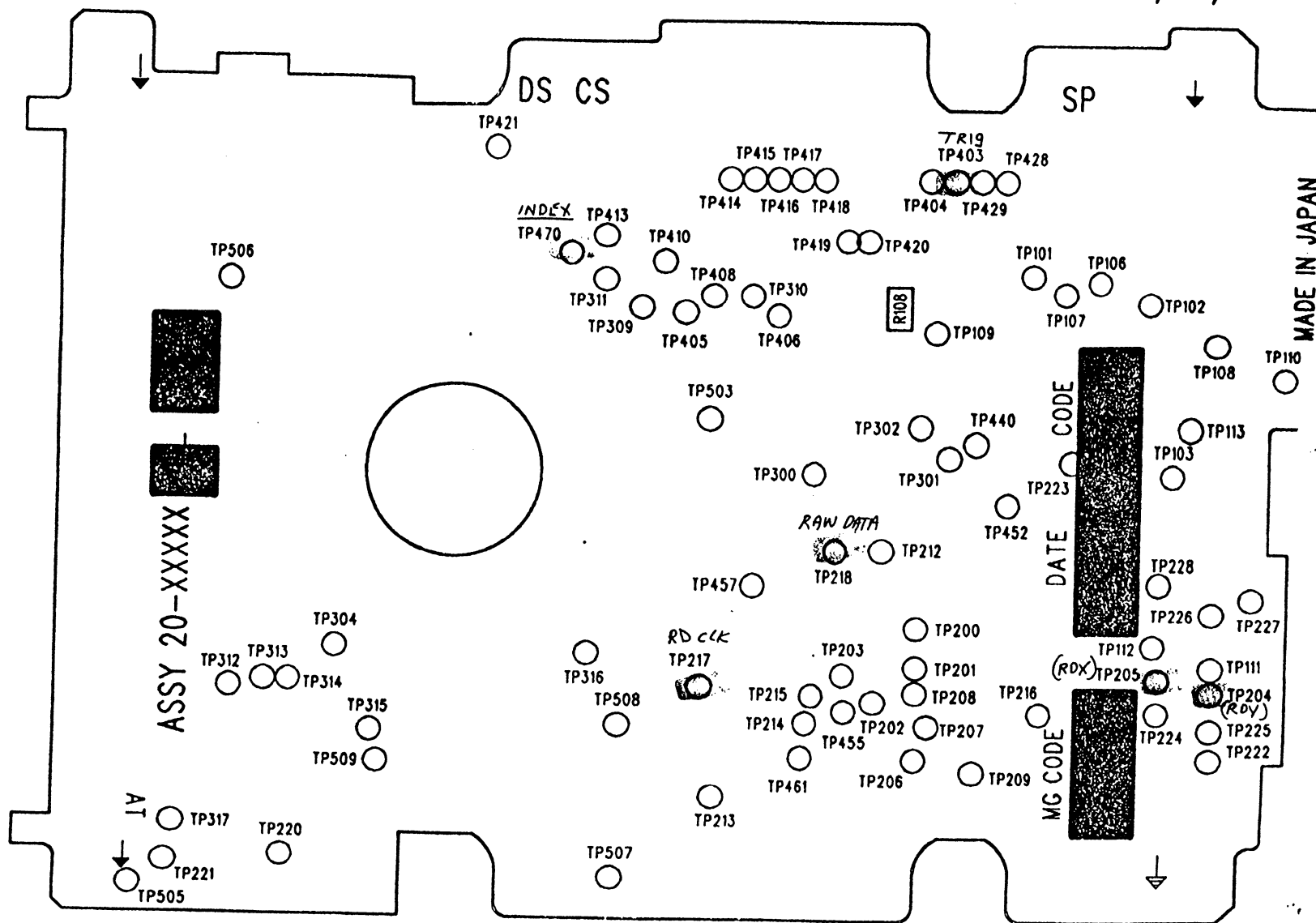
Key Product Features

- **Five (5) Capacity points----- (127,170,256,341,514 MB)**
- **Fast Spin-Up ----- (3 Sec Max)**
- **96 KB Cache ----- (Including Stack Write)**
- **Low Parts Count for Increased Reliability**
- **>350,000 Hr Projected MTBF**
- **Shock Lock (tm) Automatic actuator Shiplock**
- **Excellent Power Management to conserve Battery Life**
- **Automatic Diagnostic Testing at Power up**
- **High Shock Resistance----- (300G 2 Ms)**
- **low Profile ----- (12.5 MM for the 256 MB, 19 MM for the 514 MB)**
- **Light Weight ----- (185 Grams Max)**
- **Can Operate in any Orientation**

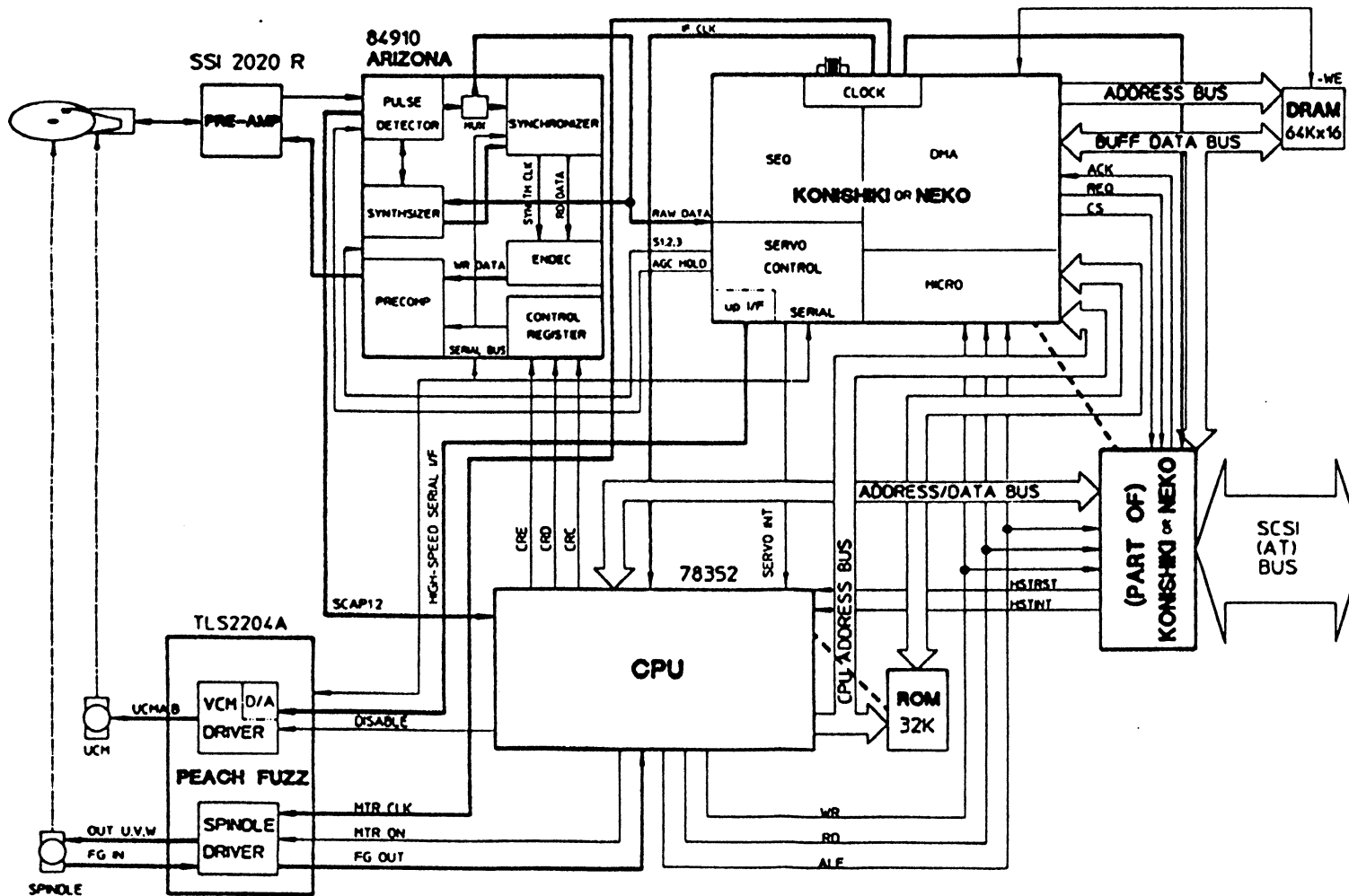
QUESTIONS AND ANSWERS

LAB VISIT

**Including a Demo of How to Scope for a
Defect (See Attached Scope TPs)**



NOTES



REV	EC	DATE	CK	SIGN

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INCHES
TOLERANCES IN INCHES

LINEAR : XX
: XXX

ANGULAR : °

CORNERS : OUTSIDE
EDGES : INSIDE
BROKEN : MATERIAL

FRONT

DRAWN BY : S BHAGAT DATE : 10/5/93

ENGINEER : B DEAN DATE : 10/5/93

Quantum

TITLE : DAYTONA,
BLOCK DIAGRAM

SIZE : B SCALE : SHEET : 1 of 1

PART NUMBER : REV : A

RELIM/DAYTONA-BLOCK-DIAGRAM

» cmds

Miscellaneous Commands:

alarm	db	fclose	in	peekw	rst
all	depb	filcbf	iorb	phase	savmac
bat	depr	filcbo	li	pokeb	stamp
break	depw	filinc	list	pokew	stat
bus	dispcfgp	fill	logfile	prod.id	sysint
cdb	dmp	filpat	macinit	q	taglba
chdir	dos	filrnd	macro	quit	varinit
chksum	dskf	flush	maskoff	rand	view
chs	echo	func	maskoff	rdfile	wait
cls	edmac	getb	maskon	rdft	wrfile
cmds	else	getr	maskon	regs	zone
cmp	errors	getw	out	rep	zones
com	excdb	goto	pause	report	
config	ext	if	peekb	reset	

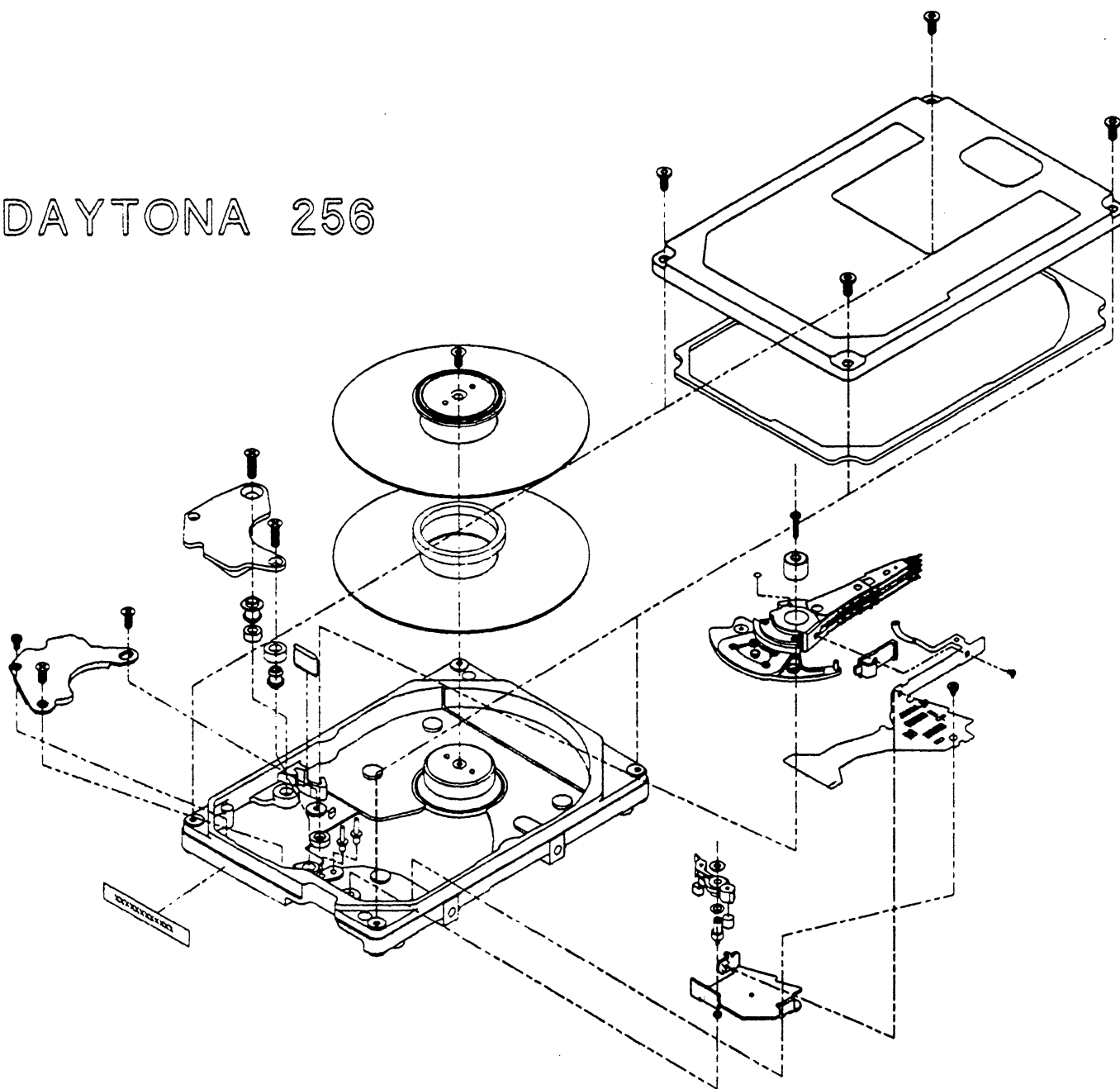
ECOSI Commands:

cache	fd	rd	rdlp	send	stopim
callsub	fdall	rdab	rdmm	seqtrig	super
cchs	fnt	rdabm	rdp	setangl	tur
clba	follow	rdamp	rdpip2	setrad	unfollow
clban	frqpred	rdangl	rdpdef	setup	unitatn
frqpred	ft	rdangls	rdpred	setwc	updpred
diag	ftp	rdb	rdsp	sk	vfy
dispred	ftpl	rdbull	rdss	skp	wedgefmt
dissp	id	rdc	rdtherm	skpk	winmrgntst
dissuper	inq	rdchist	rdttl	skpt	wr
ecc	micstp	rdconf	rdvar	skv	wr8491
enapred	msei	rdcyl	rdvars	skx	wrb
enasp	msen	rddef	rdwcs	srvfy	wrbull
enasrv	nohda	rd dsp	rdww	sst	wrconf
erasdata	peekram	rdecc	rdx	start	wrdac
erasdrv	pokeram	rdgdef	recal	startim	wrdsp
erastk	posterr	rdhdtbl	reqs	startns	wrim
etdin	prefetch	rdid	retry	stepin	wrl
etdout	rasb	rdidl	rez	stepout	wrlp
extlowz	rasbp	rdindx	rlse	stop	wrmm
extwedge	rcap	rdl	rsrv		wrp

wrpots	wrser	wrsrva	wrsrvb	wrv	wrrw
wrrdchnl	wrsp	wrsrvam	wrsrvbm	wrrws	wrx

» quit

DAYTONA 256



DAYTONA 514

