

Week 2 Day 2

Led by: Emily Crose

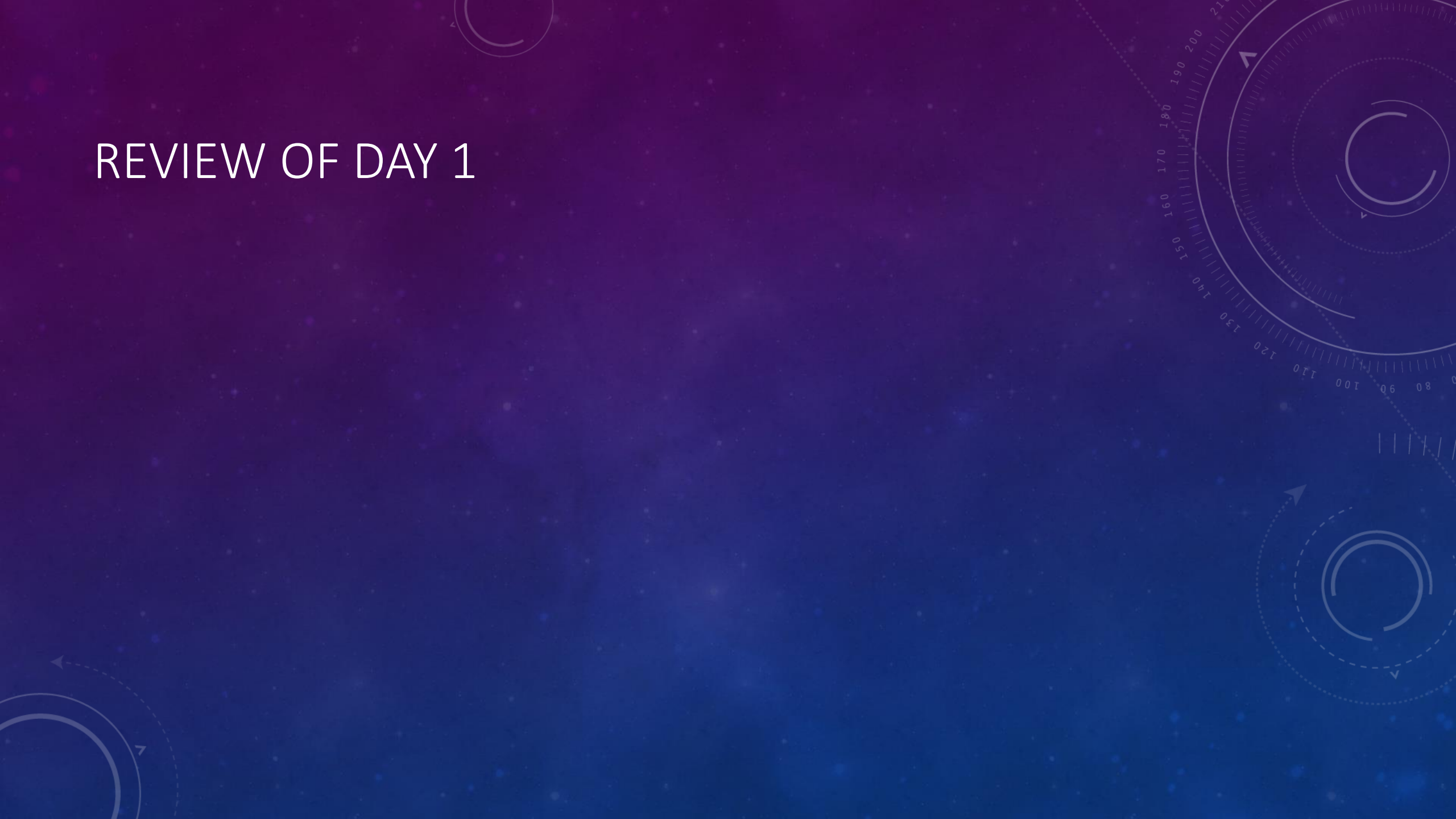
for

Oakland University

INTRODUCTION TO SOFTWARE BUSINESS PRODUCT MANAGEMENT



REVIEW OF DAY 1




QUESTIONS
FROM DAY 1?




TERMS TO LISTEN FOR

- Cache
 - A small portion of RAM set aside for temporary storage for frequently accessed data
- Process Register
 - A quickly accessible location available to a computer processor
- Heap & Stack
 - Memory management methods



APPLICATIONS & OPERATING SYSTEMS

The background is a solid dark blue color. It features several abstract, light blue geometric patterns. These include concentric circles of varying sizes, some with dashed lines. Arrows of different lengths and orientations are scattered throughout, some pointing clockwise and others counter-clockwise. Some of the circles have numerical labels around their perimeters, such as 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. The overall effect is a sense of motion and technical precision.

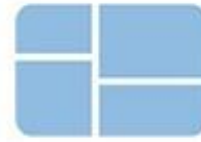
OPERATING SYSTEMS OVERVIEW

Operating System



WELL-KNOWN OPERATING SYSTEMS

OLD & OUT OF SUPPORT WINDOWS VERSIONS



1.0 (1985)



3.1 (1992)



95 (1995)



XP (2001)



Vista (2006)



7 (2009)



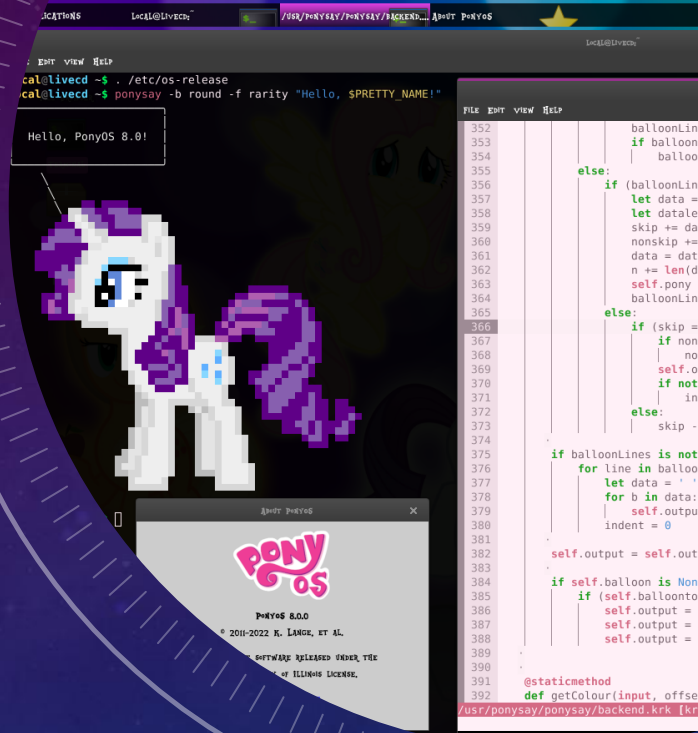
8 (2012)



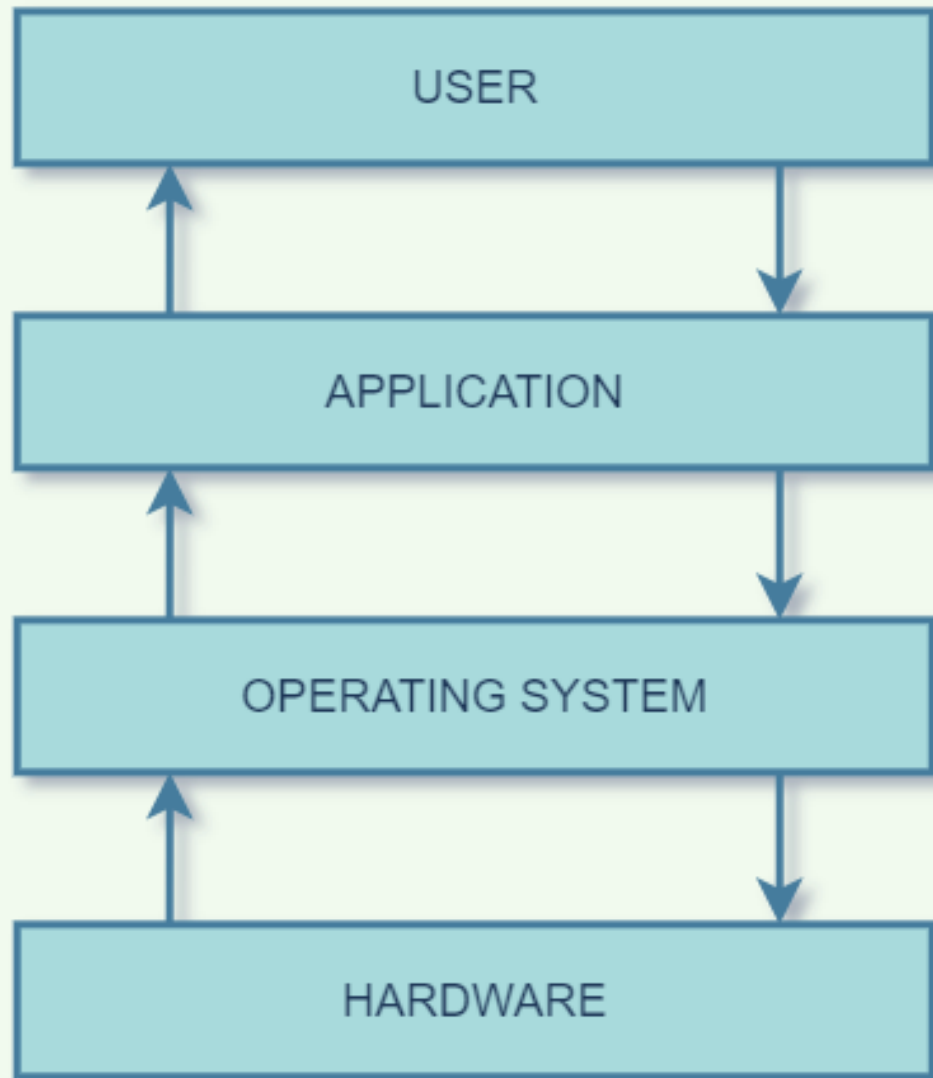
10 (2015)

TempleOS

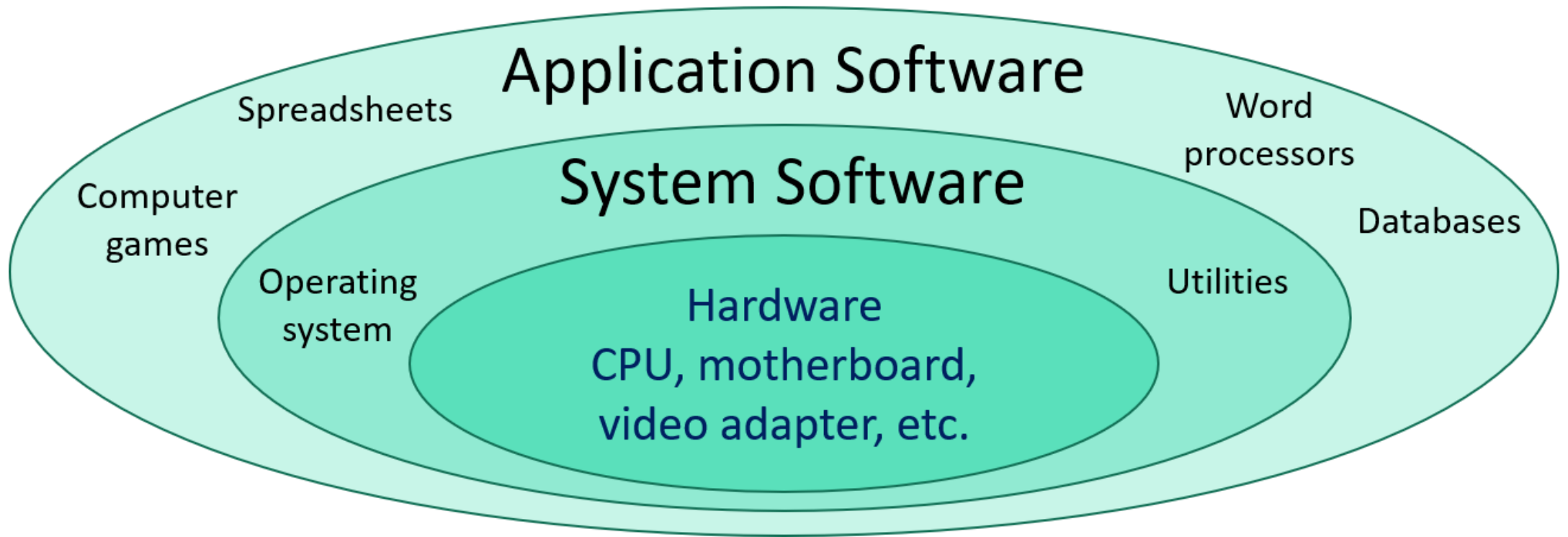
HANNAH
MONTANA
M
LINUX



FUNNY LINUX VARIANTS



OPERATING SYSTEMS VS APPLICATIONS



OPERATING SYSTEM VERSUS APPLICATION SOFTWARE

OPERATING SYSTEM

A system software that manages computer hardware and software resources and provides common services for computer programs

Works as the interface between the user and hardware, performs process management, memory management, task scheduling, hardware device controlling and many more

Developed using C, C++, Assembly languages

Boots up when the user switches on the computer and runs till he switches off the machine

Necessary for the proper functioning of the computer

Ex: Windows, Unix, Linux, DOS

APPLICATION SOFTWARE

A software designed to perform a group of coordinated functions, tasks or activities for the benefit of the user

Performs a single specific task

Developed using Java, Visual Basic, C, C++

Runs only when the user requests to run the application

Cannot be installed without an operating system

Ex: Word, Spreadsheet, Presentation, Multimedia tools, Database Management Systems

Visit www.PEDIAA.com

OS & APP DIFFERENCES



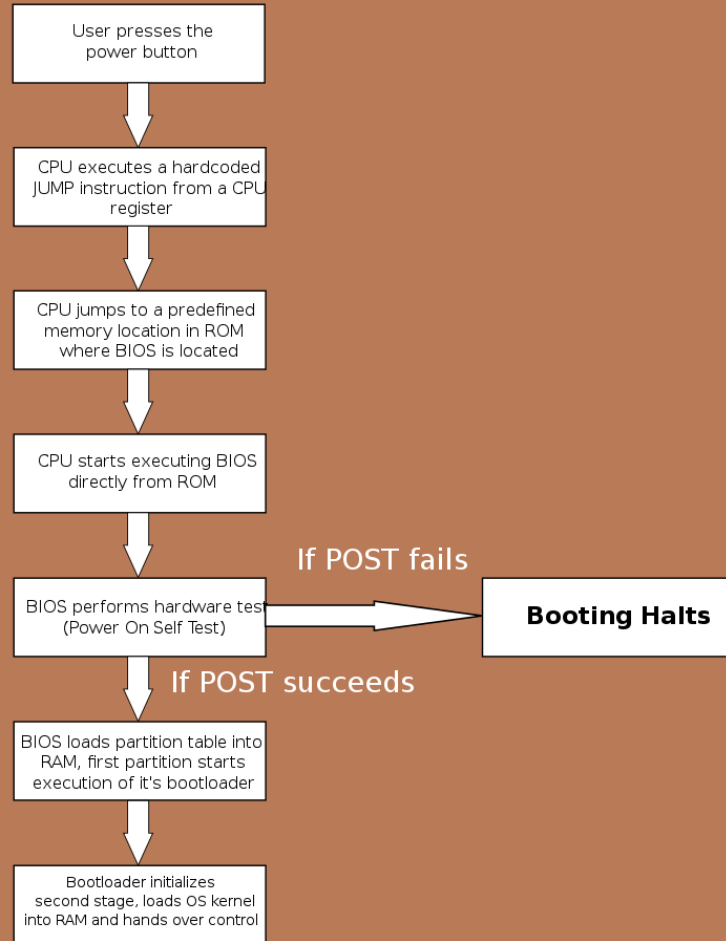
Your PC ran into a problem and needs to restart. We'll restart for you.



For more information about this issue and possible fixes, visit <https://www.windows.com/stopcode>

If you call a support person, give them this info:
Stop code: KERNEL SECURITY CHECK FAILURE

Computer booting sequence

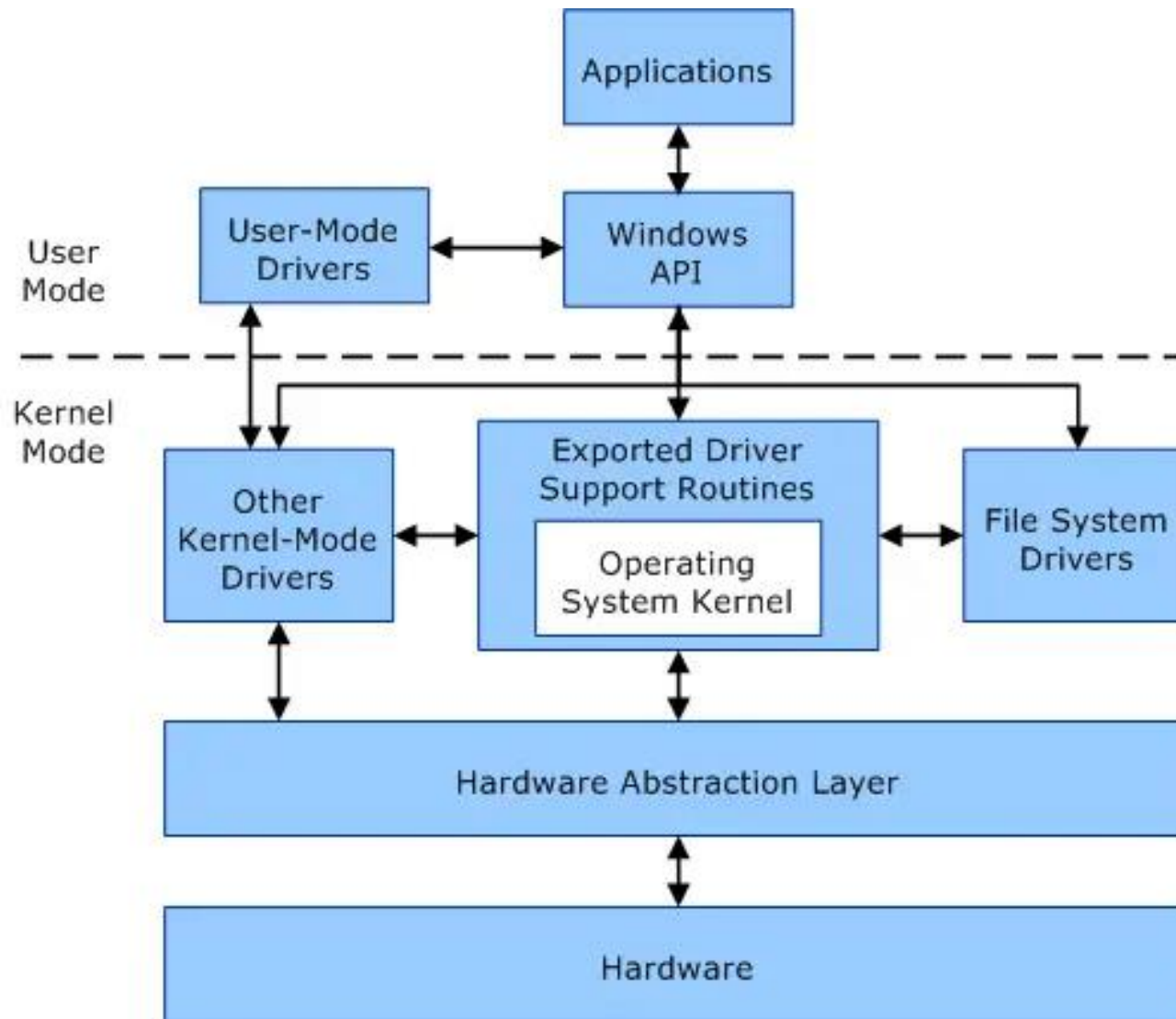


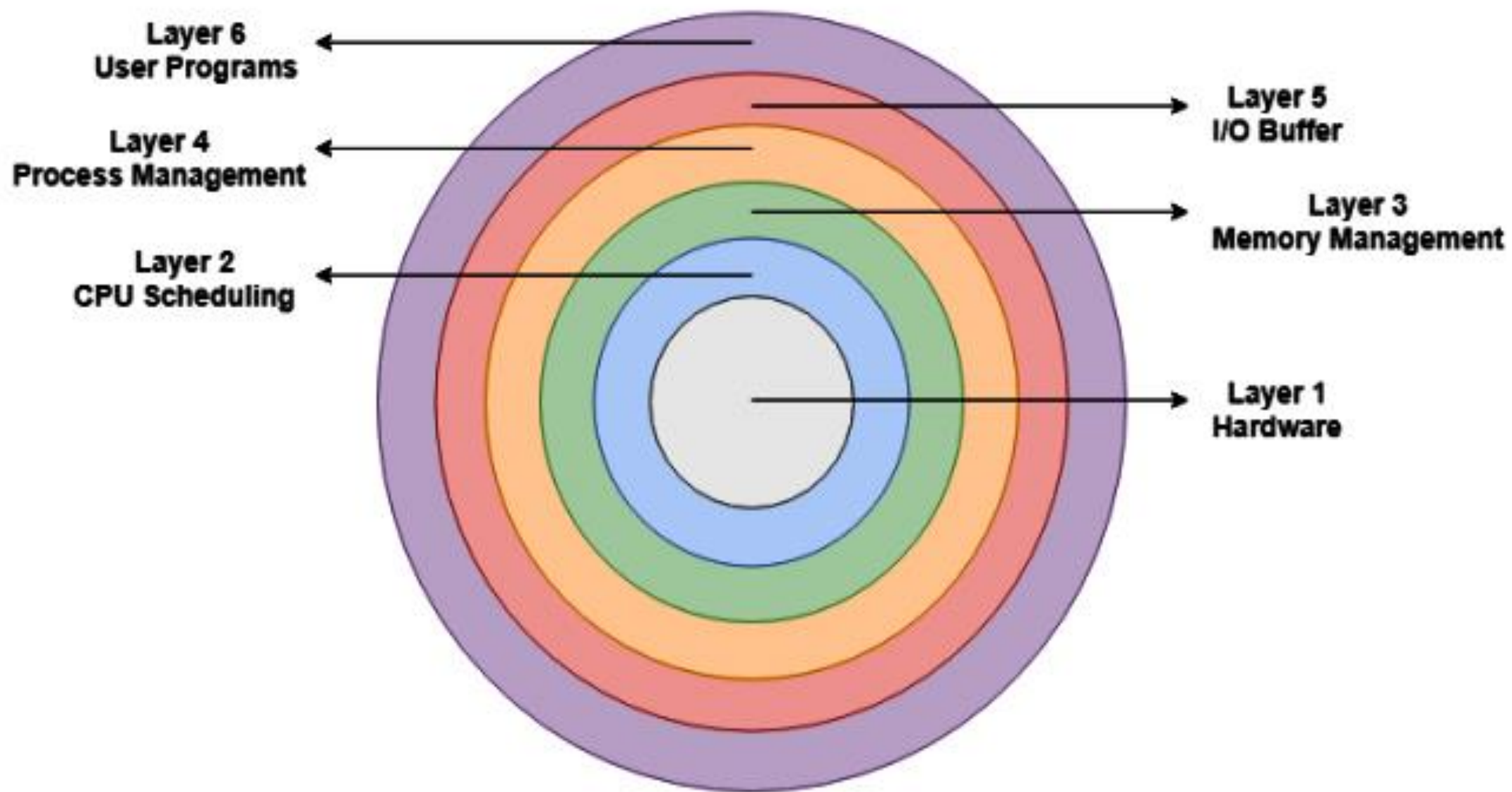
POWER-ON SELF-TEST (POST)

A close-up portrait of an older man with white hair, a mustache, and glasses, smiling. The image is overlaid with a blue and purple gradient and technical graphics, including concentric circles, dashed lines, and numerical scales (40, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260).

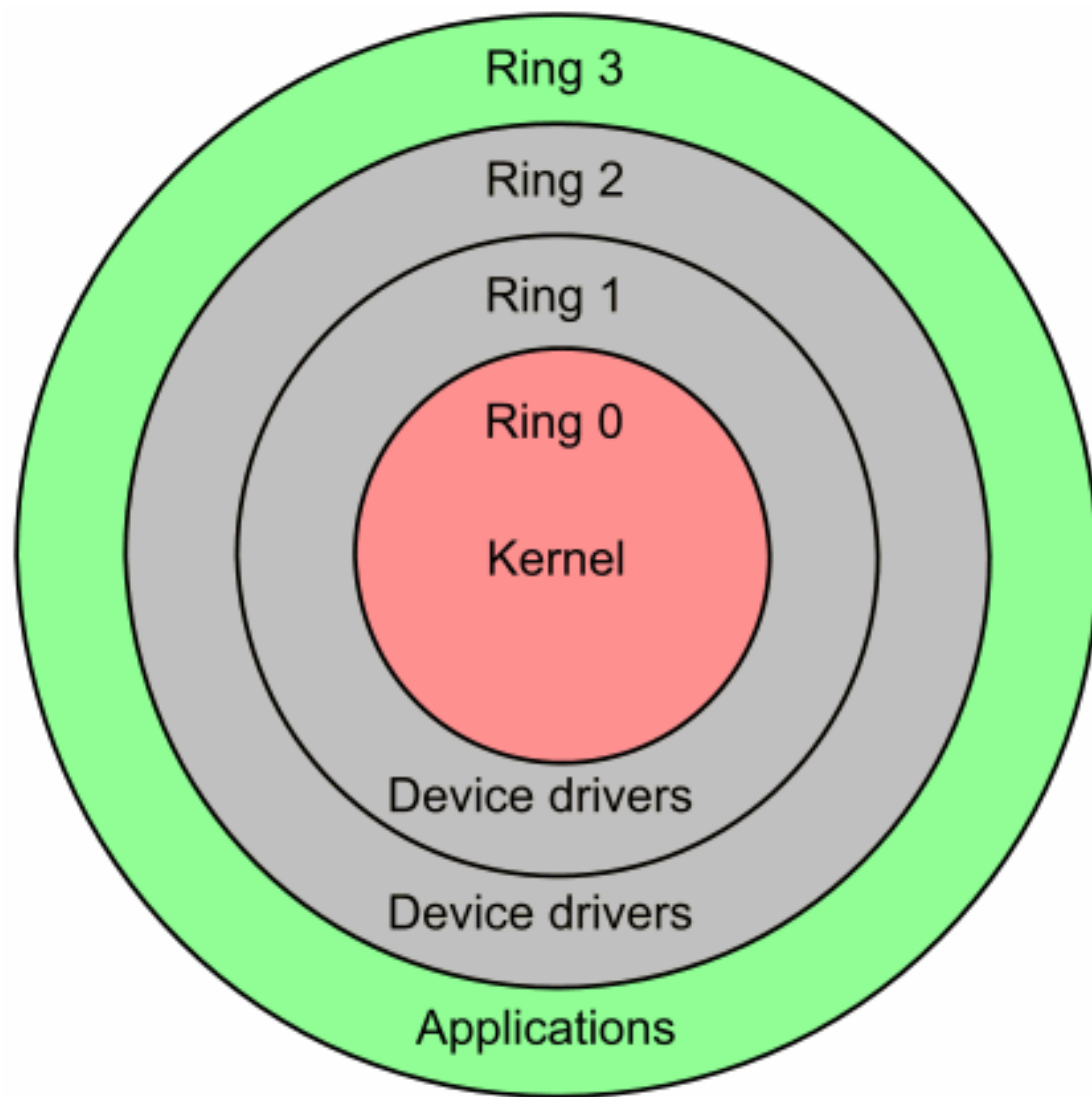
THE KERNEL

RIP, King





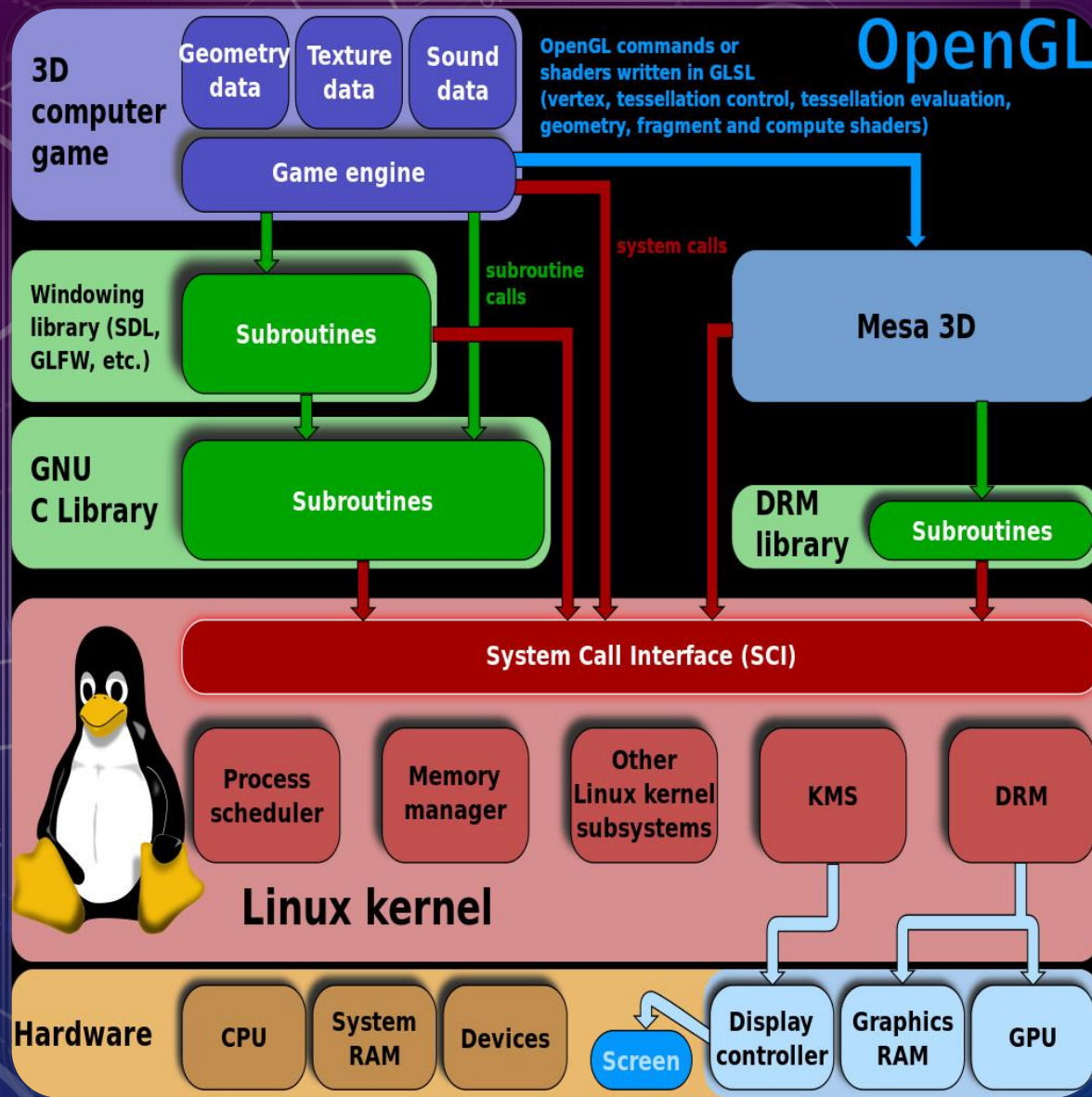
Layers of operating system



Least privileged



Most privileged



KERNEL OPERATION

OPERATING SYSTEM SUPPORT



10 MINUTE
BREAK



APPLICATIONS



TYPES OF APPLICATIONS



Mobile
applications



Desktop
applications



Embedded
applications



Web applications



DESKTOP APPLICATIONS

“THIN” CLIENT VS “THICK” CLIENT

Thick client Architecture



Thin client Architecture





MOBILE APPLICATIONS



The Oatmeal

[Home](#) [Comics](#) [Games](#) [Books](#) [Blog](#) [✉ Subscribe](#)

Hi. My name is Matthew Inman. I'm a cartoonist.

I've been publishing comics on this website since 2009. Every few years, I compile these comics into books, such as [How to tell if your cat is plotting to kill you](#). I also make card games, such as [Exploding Kittens](#) and [Throw Throw Burrito](#). Right now, I'm busy making an [animated TV series at Netflix](#).

The Latest

Horrible Therapist

Random comic generator



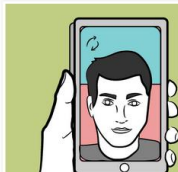
Rise from
the deep



How venting is supposed to feel



Taking selfies from
various angles



Popular comics

My dog:
the paradox



You're not going to believe
what I'm about to tell you



You're doing it for the
EXPOSURE



We need to have a
conversation about
wombats.



WEBSITE

Web Application Architecture



WEB
APPLICATIONS

EMBEDDED SOFTWARE & SYSTEMS



Industrial Robots



GPS Receivers



Digital Cameras



DVD Players



Wireless Routers

Embedded Systems



MP3 Players



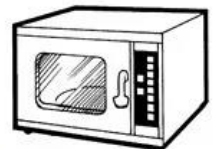
Set top Boxes



Gaming Consoles

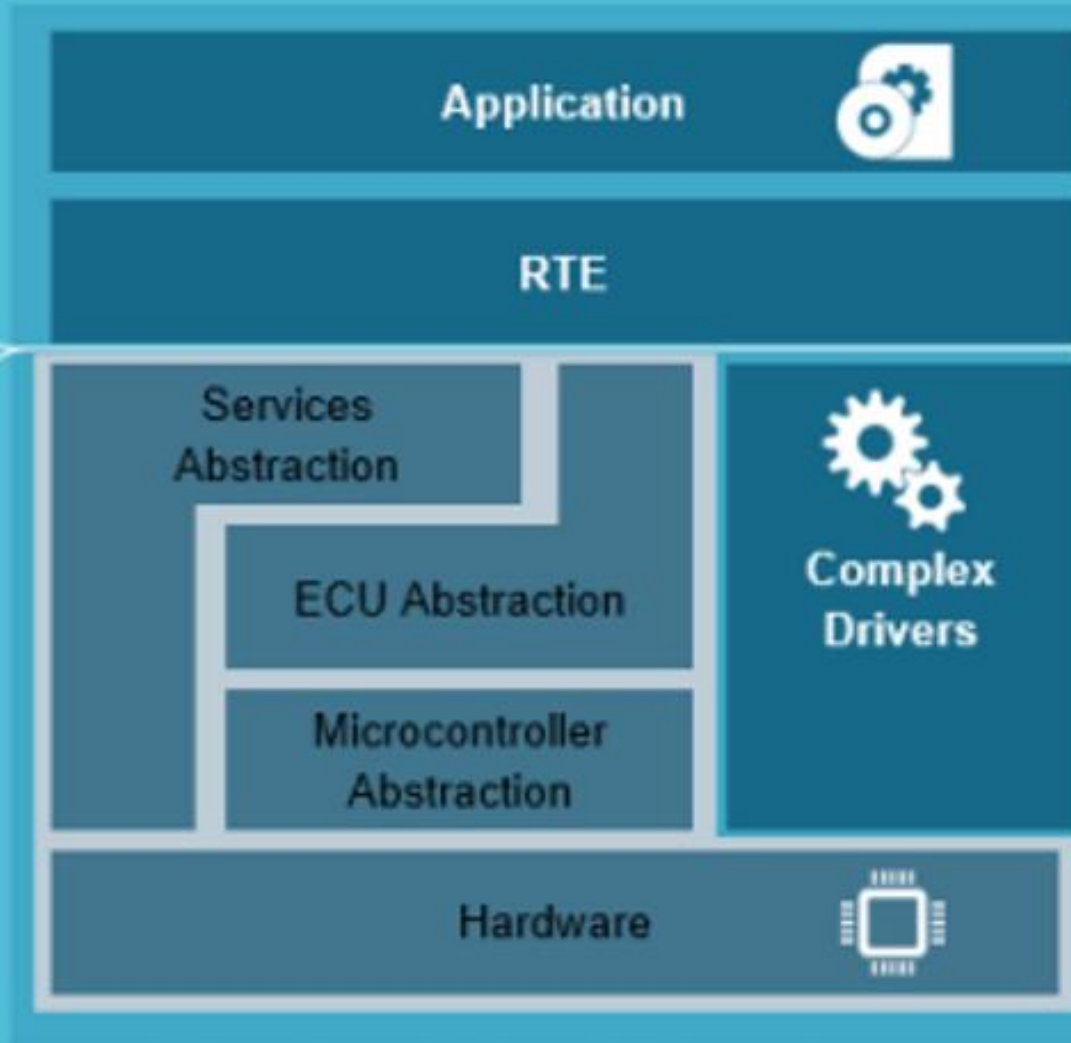


Photocopiers



Microwave Ovens

EMBEDDED SOFTWARE APPLICATION



Embedded System

WHERE DOES IOT FIT?

- What do we know about IoT?
 - Inside of consumer electronics
 - Embedded applications?
- Can IoT be more than one category?

10 MINUTE
BREAK



The background is a deep blue gradient. It is covered with a pattern of binary code (0s and 1s) in a lighter blue color. Overlaid on this are several semi-transparent circular elements. Some are solid white outlines, while others are dashed. There are also small white arrowheads pointing in various directions. On the left side, there are vertical scales with numbers ranging from 140 to 260, suggesting a measurement or data visualization theme.

BINARY

A ● —

B — ● ● ●

C — ● — ●

D — ● ●

E ●

F ● ● — ●

G — — ●

H ● ● ● ●

J ● — — —

K — ● —

L ● — ● ●

M — —

N — ●

O — — —

P ● — — ●

Q — — ● —

S ● ● ●

T —

U ● ● —

V ● ● ● —



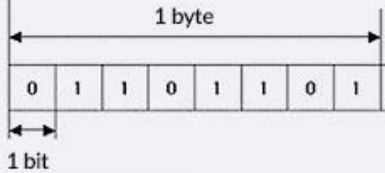
W ● — —

X — ● ● —

Y — ● — —

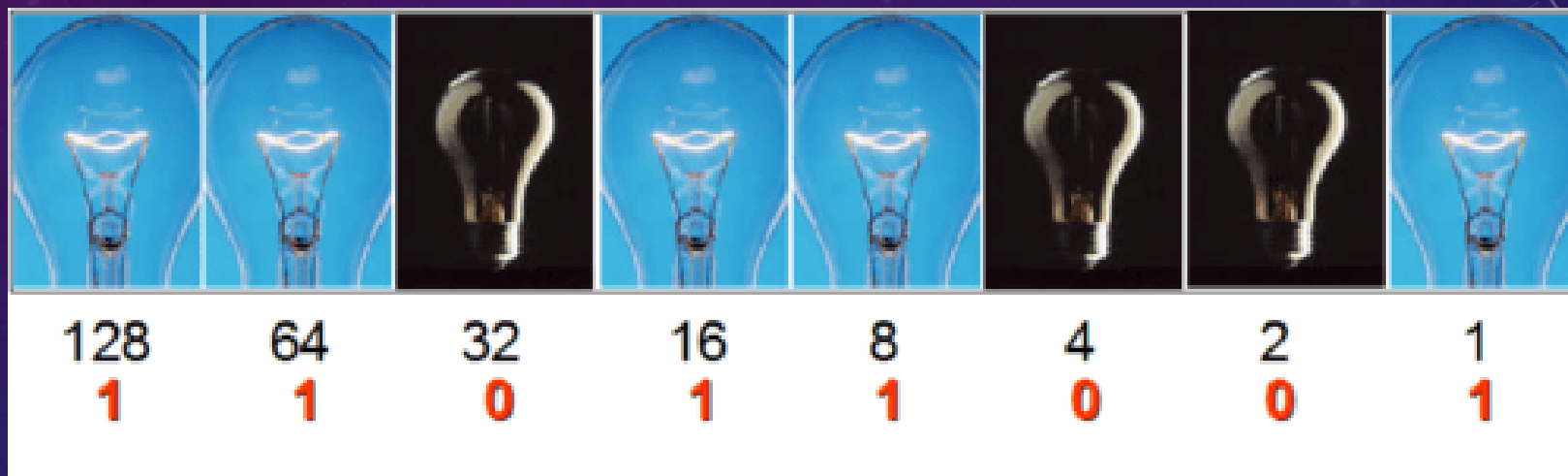
Z — — ● ●

= bit and byte =

Bit (binary digit, bit)	Byte
Measurement unit that can only have two values, 0 and 1	Unit that indicates the amount of data, consisting of eight bytes
 0 OFF FALSE  1 ON TRUE	

Samsung Semiconstory
samsungsemiconstory.com

BITS & BYTES



LETTER	ASCII VALUES	BINARY VALUES	LETTER	ASCII VALUES	BINARY VALUES
A	65	01000001	A	97	01100001
C	67	01000011	C	99	01100011
D	68	01000100	D	100	01100100
E	69	01000101	E	101	01100101
F	70	01000110	F	102	01100110
G	71	01000111	G	103	01100111
H	72	01001000	H	104	01101000
I	73	01001001	I	105	01101001
J	74	01001010	J	106	01101010
K	75	01001011	K	107	01101011
L	76	01001100	L	108	01101100
M	77	01001101	M	109	01101101
N	78	01001110	N	110	01101110
O	79	01001111	O	111	01101111
P	80	01010000	P	112	01110000
Q	81	01010001	Q	113	01110001
R	82	01010010	R	114	01110010
S	83	01010011	S	115	01110011
T	84	01010100	T	116	01110100
U	85	01010101	U	117	01110101
V	86	01010110	V	118	01110110
W	87	01010111	W	119	01110111
X	88	01011000	X	120	01111000
Y	89	01011001	Y	121	01111001
Z	90	01011010	Z	122	01111010

ASCII Code

Char.	ASCII	Char.	ASCII	Char.	ASCII
@	64	U	85	j	106
A	65	V	86	k	107
B	66	W	87	l	108
C	67	X	88	m	109
D	68	Y	89	n	110
E	69	Z	90	o	111
F	70	[91	p	112
G	71	\	92	q	113
H	72]	93	r	114
I	73	^	94	s	115
J	74	_	95	t	116
K	75	`	96	u	117
L	76	a	97	v	118
M	77	b	98	w	119
N	78	c	99	x	120
O	79	d	100	y	121
P	80	e	101	z	122
Q	81	f	102	{	123
R	82	g	103		124
S	83	h	104	}	125
T	84	i	105	~	126

B → 1000010

L → 1101100

U → 1110101

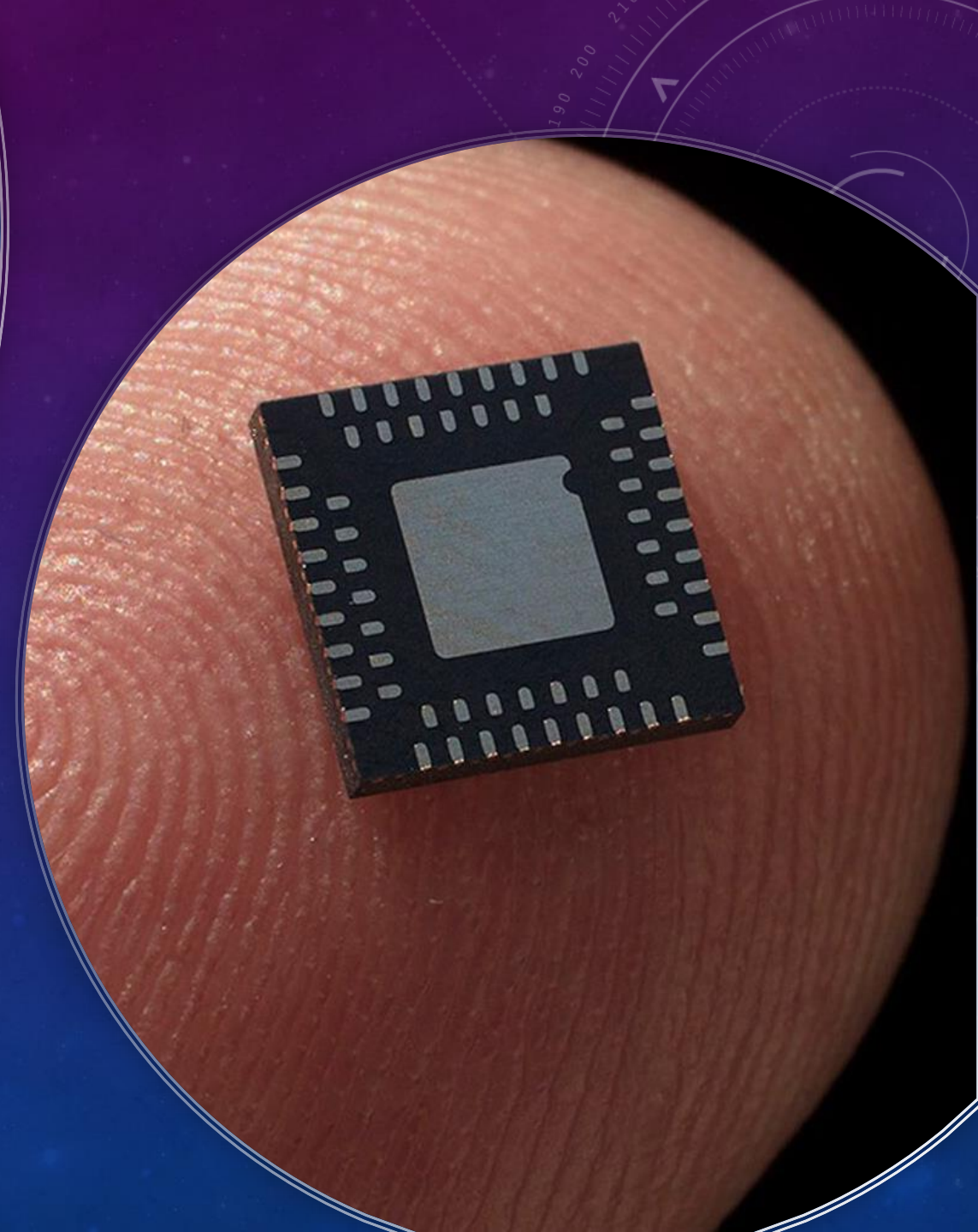
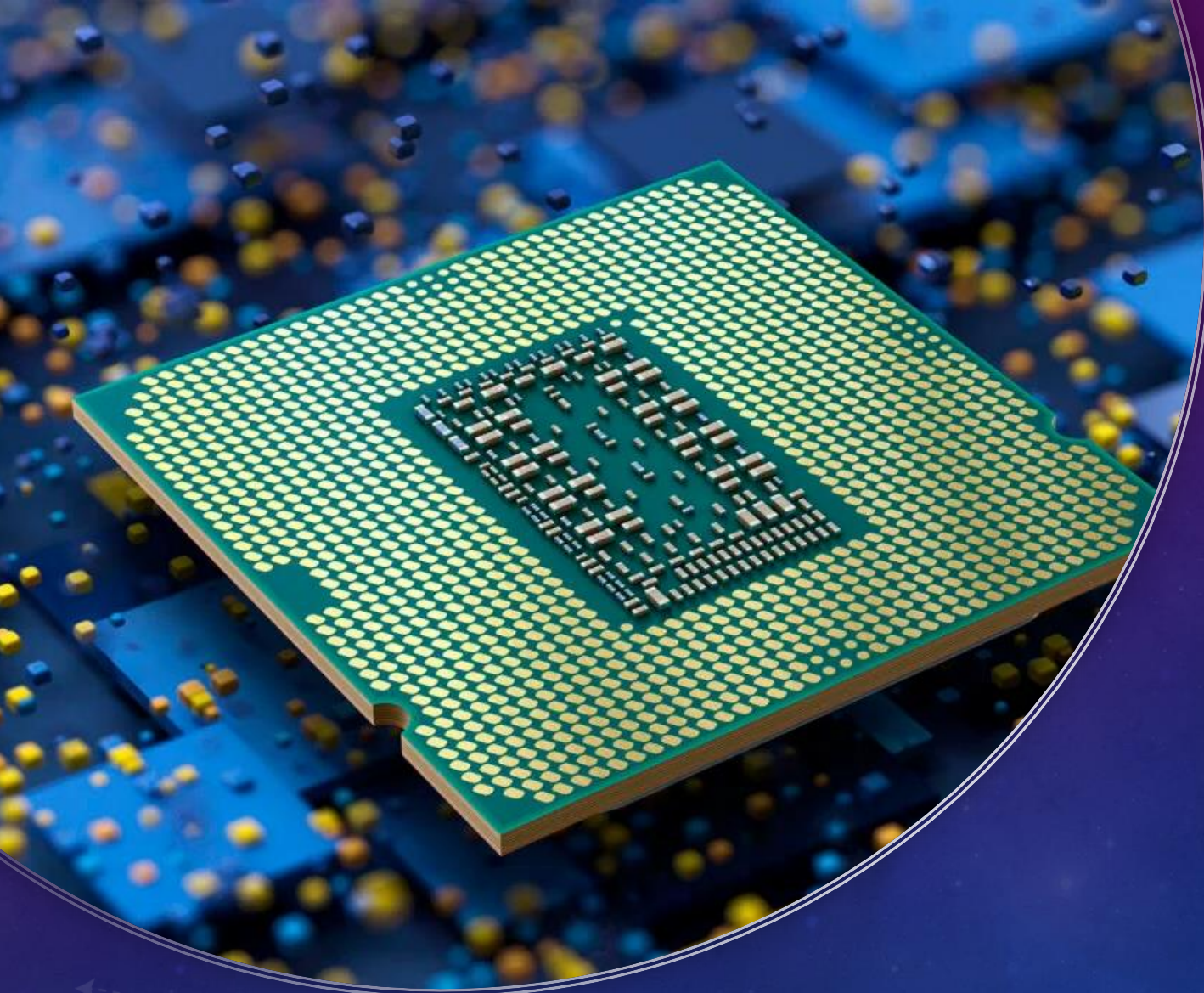
e → 1100101

FUN WITH TRANSLATIONS!

- <https://gchq.github.io/CyberChef/>



CPU ARCHITECTURE

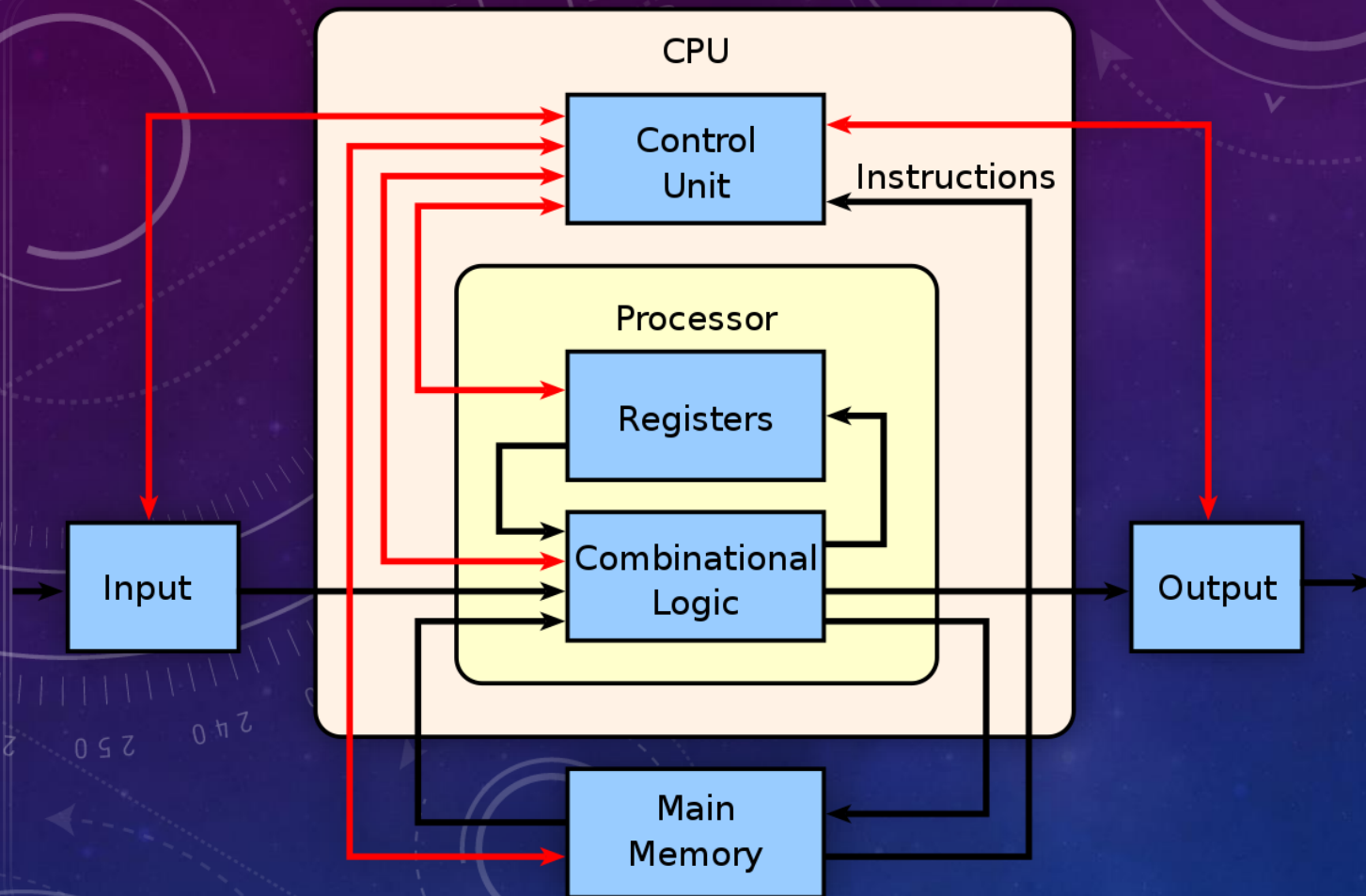


PROCESSOR CLASSIFICATIONS

- Architecture
- Processed bits
- Design
- Registers

COMMON CPU ARCHITECTURES

- X86
 - Desktop PCs
 - Most Intel chips are built on this
 - More cores
- Arm/A32
 - Small consumer electronic devices
- Arm/A64
 - New Macbook Pro M1 & M2
- RISC-V



HOW
PROCESSING
WORKS

REVIEW DAY 2



QUESTION OR
CLARIFICATIONS?





PREVIEW DAY 3

SEE YOU NEXT TIME!
