



Year 2000

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.....	1749.00	-	26.00	
.....	1737.00	-	18.00	
.....	5570.00	+	5.00	
.....	5115.00	+	25.00	
.....	+	3.00	
.....	2314.00	+	5.00	
.....	600.50			
.....	7372	31 1/4	60 1/2	
.....	57	37 3/4		59
.....	20	18 1/2		77
.....	11	13 1/4		97
.....	24			3
.....	15 1/4	5 7/8	5 1/2	
.....	3,049.44	9 3/4	8 3/4	31.80
.....	4,899.30	15 1/8	13 1/4	
.....	4,408.7	9	19	37.26
.....	.....	1 3/4	29 1/4	25 1/2
.....	.....			52.83
.....	.....	5.00	2.29	9.30
.....	8,194.04	1.00	- 4.00	25.94
.....	6,789.48	17.00	- 3.00	49.88
.....	.....	7075.00	- 2.00	
.....	.....	7165.00	- 25.00	
.....	.....	1675.00	+	27.00
.....	.....	1541.00	-	1.00



Possible Outcomes of Y2K

- **Nothing:** No significant impact.
- **Disruption:** Short-term, local, limited impact, recoverable, outside help available
- **Catastrophe:** Medium-term, widespread, serious impact, some permanent damage
- **Armageddon:** Long-term, global, irreversible



Most Likely: Disruption to Catastrophe

OUTCOME:	Nothing	Disruption	Catastrophe	Armageddon
Safety	✓	✓	✓ X	X
Environment	✓	✓	✓ X	X
Financial	✓	✓	X	X
Production	✓	✓	X	X
ACTION:	None	Keep going, recover	Contingencies, protect	Go home

EQE Year 2000 Embedded Systems Solution



Identify and Prioritize Mission-Critical Systems

Identify Embedded Components

Wak Down System

Establish Y2K Compliance

Consequence Review

Implement Upgrade

Test Mission-Critical Systems

Contingency planning is performed throughout the project to prepare for planned and unforeseen Year 2000 events.

All aspects of the program are documented in a multimedia database application.



Phase I - Risk-Based Assessment

Phase II - Inventory and Compliance

Phase III - Remediation and Testing



Risk-Based Approach for Contingency Planning

- **Answers three fundamental questions**
 - 1) **What can go wrong?**
 - 2) **What are the consequences?**
 - 3) **What is the likelihood?**



What Level of Preparedness is Required?

- With predictions of Y2K effects ranging between Hype and Armageddon, it is difficult to judge what level of planning is required.
- A common sense approach is to assume that Y2K should have about the same level of preparedness as a major earthquake.



Structured Approach

- What are the consequences of a system failure?
- Has it failed before?
- How did you handle the problem?
- Is the emergency procedure documented?
- Does it require third-party suppliers?

Past System or Supply Chain Failures

- What are the interdependencies?
 - Internal
 - External
- What are the emergency hardware requirements?
- What are the emergency staffing requirements?



External and Internal Inputs/Outputs

- Power is the primary external input which must be present for system operation
 - Regional utility
 - Uninterruptible power/batteries
 - Standby generators

Duration of Year 2000 Scenario



- **For guidance, look at past events:**
 - The 1998 San Francisco power outage lasted about 6 hours.
 - The 1998 Auckland New Zealand power outages were intermittent over a three month period.
 - The 1994 Northridge Earthquake resulted in power blackout and isolated outages lasting 48-72 hours.
 - The 1989 Loma Prieta Earthquake resulted in power outages lasting 24-48 hours.
 - The 1977 New York City blackout lasted about 24 hours.

End Result

- Understand what the real problems are
- Focus efforts on what is important
- Use resources to minimize risk
 - What to upgrade
 - What to test
- Develop Contingency Plan
- Understand the impact of third-party suppliers

