

DEEP REINFORCEMENT LEARNING

Asha Guruvayurappan | Radhu Palliyana

CHEESE PROBLEM

1. BASIC TASK AND DOMAIN

Reinforcement learning has been proven to solve a variety of applications including robotic control, self-driving cars etc. In this task, we aim to solve a basic grid world problem in which the agent should interpret the environment and make decisions to obtaining the shortest path to reach the terminal (goal) state using Q Learning. The agent is a mouse exploring the grid environment in search of cheese, which is the terminal state. The environment also contains traps that the agents must avoid, and walls that block movement. The objective is to collect maximum rewards in shortest possible moves. The environment is a 6×6 matrix, with (-1) reward for path, -50 rewards for traps, no possible path to walls and Cheese (goal state) with 100 rewards. Figure 2. The agent learns and updates the Q values by taking actions (a) from state (s) with the update rule

$$Q(s_t, a_t) \leftarrow Q(s_t, a_t) + \alpha[r_{t+1} + \gamma \max_a Q(s_{t+1}, a_{t+1}) - Q(s_t, a_t)]$$

Where α is the learning rate and γ is discount factor.

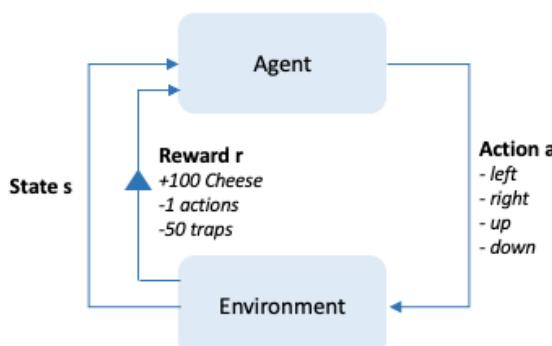


Figure 1 : Basic RL Model

For single - agent reinforcement learning, the environment of the agent can be described as a Markov Decision Process (MDP) [3]. A conventional reinforcement learning methods to solve Q learning is a model-free reinforcement learning. It is started by setting all Q values to 0 initially and agent is allowed to go around and explore the state-action space. Figure 1 shows the basic model for reinforcement learning [2].

Agent will perceive the environment and choose an action to obtain the biggest reward value by continuously interacting with the environment [2].



Figure 2 : Grid Environment

2. STATE TRANSITION FUNCTION

The transition function denotes a probability distribution over next states given the current state and action [3]. The initial position of the agent is not fixed and will be chosen randomly from the available states (-1), but the goal state is fixed.

Possible actions: The action space $a \in A$, where A consists of 4 actions that the agent can perform.

$$A = \{\text{'up'}, \text{'down'}, \text{'right'}, \text{'left'}\}$$

If the chosen action takes the agent off the field, the agent will remain in the current state. For example, the agent restricts the movement to wall, no action is selected. An agent can choose to enter a trap state but would receive a huge negative reward (-50), the aim is to avoid all traps.

Terminal state: The environment attains the terminal state when it reaches the destination which is in position S_{29} , where the cheese is placed. Figure 3 explains all the possible state transition for the given environment.

State(s)	Action(a)	Next s' = t(s,a)
S_{29}	up	S_{22}
S_{29}	down	S_{36}

Table 1: Possible action from random start position S_{29}

3. REWARD FUNCTION

Reward function is another critical component of Reinforcement learning. The reward function denotes the rewards received after transition to new state and action [3] with which the Q value is updated. The path for the agent navigation is provided with -1 reward for taking shortest possible path. A negative reward for possible action was chosen, as if a positive reward had been chosen the agent might try to accumulate as much as rewards as possible before reaching the goal state. On reaching the goal state the agent is rewarded +100. Thus by taking the shortest path the agent can maximize the reward. Additionally the agent should avoid traps, as -50 reward is set if the agent chooses to enter the trap.

State(s)	Action(a)	Reward $r' = r(s,a)$
S_8	right	-1
S_8	left	-1
S_8	up	-100
S_{28}	right	100
S_{28}	left	-1
S_{28}	up	-1
S_{28}	down	-1

Table 2: Possible rewards from S_8 and S_{28}

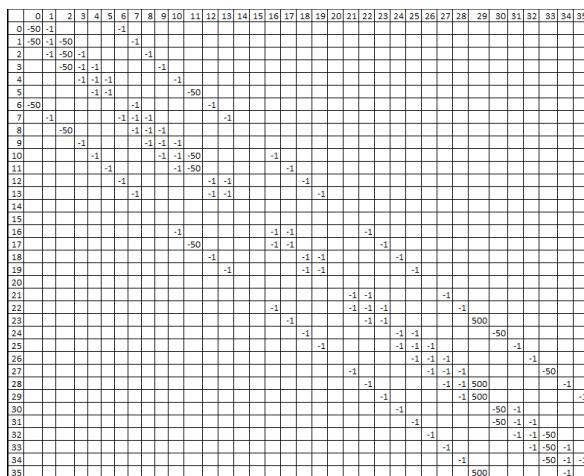


Figure 3 : State transition (Clear image in Appendix)

4. Q LEARNING APPROACHES

Q Learning is a reinforcement learning algorithm that seeks the best action from a given state. This is achieved with the help of these key parameters: discount factor (γ), exploration factor (ϵ), learning rate (α) and learning policy (π).

4.1 Discount factor (γ):

Where $\gamma \in [0,1]$.

It determines how much the agent cares about the future rewards , with lower value of γ , the agent tries to learn only about actions that produce an immediate reward; where as if the value of γ is close to 1 , the agent works towards a long term (high) reward. The agent is trained with 0.3, 0.6, 0.9 to identify the best parameter

4.2 Learning rate (α):

Determines how well we consider the new value over the old value. Agent learns faster when the learning rate is increased. Similarly, the agent is trained with 0.3, 0.6, 0.9 to identify the best parameter.

4.3 Learning policy (π):

An optimal learning policy will maximize the discounted future rewards with a discount factor γ [3]. For the task we identify the best policies for the problem,

(i) Random Policy: The agent chooses a random action at any given time.

(ii) Threshold Based Policy:

A policy threshold is set as a constant value and the agent will choose a random next state if it is less than the policy, best action otherwise.

(iii) ϵ -greedy policy:

The ϵ -greedy policy makes a trade-off between exploration and exploitation by denoting the randomness in the policy, action is greedy with probability 1- ϵ and random with ϵ . The goal is to start randomly and later move towards a deterministic policy, this can be achieved with the help of a decay factor. When 1- ϵ values are close to zero the agent has more probability of exploring the environment and after series of iterations the agent starts to exploiting until it flattens at a final value. This will prevent the agent from being stuck at a local maximum position.

Parameter	Value
Learning rate(α)	0.3, 0.6, 0.9
Discount factor(γ)	0.3, 0.6, 0.9
Decay	0.999
Epsilon start	0.08
Epsilon min	0.01

Table 3: Parameter tuning for Q Learning

4.4 Q Matrix (q):

The q matrix is a 6×6 matrix with 4 dimensions each representing the actions (up, down, left, right). The matrix is initialized to zero which will be updated for every action, a reward is obtained with which the q value is updated along with learning rate and discount factor. The mathematical operation used to calculate q values are derived from Bellman's Optimality Principal. Figure 4. This approach is suitable for simple grid problems, but as the environment grows the q matrix grows exponentially making storage and computation inefficient.

```

Initialize  $Q(s, a), \forall s \in \mathcal{S}, a \in \mathcal{A}(s)$ , arbitrarily, and  $Q(\text{terminal-state}, \cdot) = 0$ 
Repeat (for each episode):
    Initialize  $S$ 
    Repeat (for each step of episode):
        Choose  $A$  from  $S$  using policy derived from  $Q$  (e.g.,  $\epsilon$ -greedy)
        Take action  $A$ , observe  $R, S'$ 
         $Q(S, A) \leftarrow Q(S, A) + \alpha[R + \gamma \max_a Q(S', a) - Q(S, A)]$ 
         $S \leftarrow S'$ ;
    until  $S$  is terminal

```

Figure 4 : Q Learning Algorithm

5. PERFORMANCE Vs EPISODE

The score earned during each episode is the major metric used to evaluate an agent's performance. As previously stated, when the agent (mouse) reaches the goal state a reward of +100 is awarded. The performance of the agent can be identified with various metrics, in this paper, we use the mean reward and the number of steps taken for each episode. The agent was first trained with a random policy update which did not perform well as expected. The agent when trained with a threshold (0.5) performed better compared to previous training.

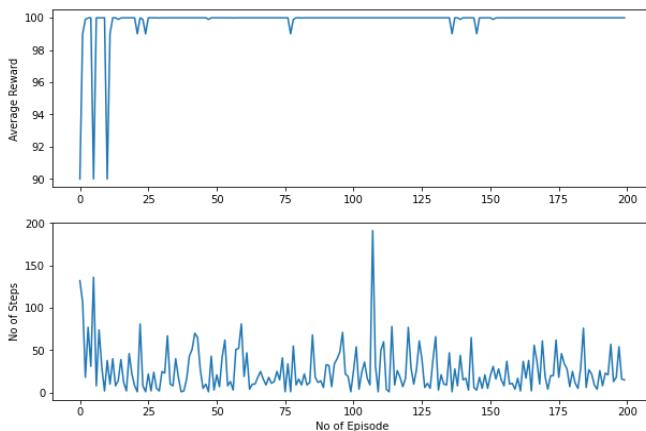


Figure 5 : Action Selection with Threshold

After applying epsilon greedy approach, the performance of the agent drastically increased when evaluating the number of steps and reward for each episode. The agent starts exploring the environment

with epsilon = 0.8 and gradually starts learning and exploit towards the end. Both alpha and gamma was constant 0.9.

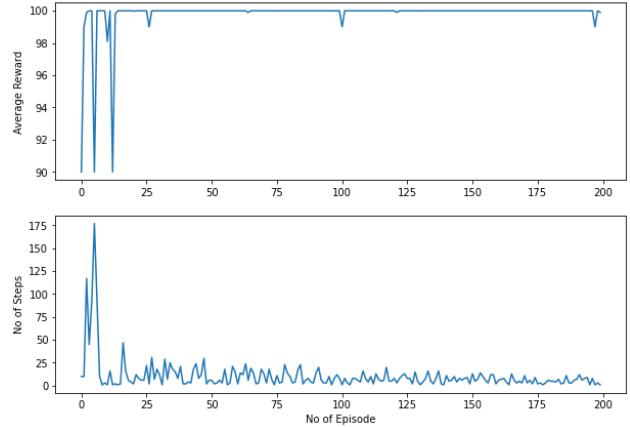


Figure 6 : Action Selection with epsilon greedy approach

From Figure 5 it is evident that, in the beginning of the run, the number of steps taken by the agent to reach the final state is higher, which gradually learns with more number of episodes decreasing the number of steps to reach the final state. After 25 episodes the agent starts to exploit the environment with less number of steps and more rewards. It can be observed that the agent attains an optimum learning policy after 100 episodes.

When comparing the performance of different alpha parameters with constant gamma 0.9, it can be seen that a learning rate of 0.9 outperforms values of 0.3 and 0.6. It is evident that the agent is learning very fast as observed in the steepness in the graph. Figure 7.

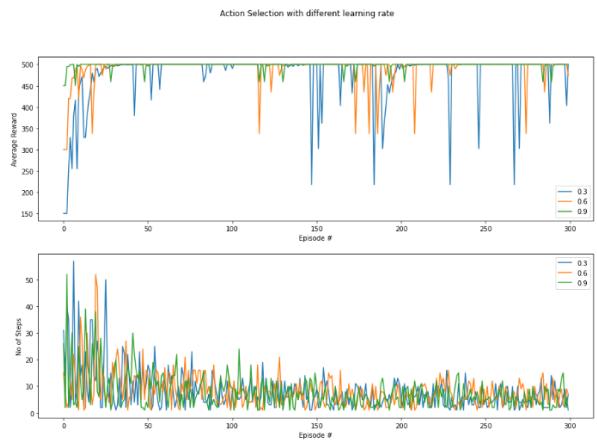


Figure 7 : (alpha = [0.3,0.6,0.9] , gamma = 0.9)

To study further regarding the effect of gamma and alpha parameters, a hyperparameter is performed.

5.1 Experiment with different gamma and alpha parameters

In Figure 8, it can be observed that a combination of alpha with 0.6 and gamma of 0.9 value shows the best learning. Figure 9 shows the implementation of best parameters

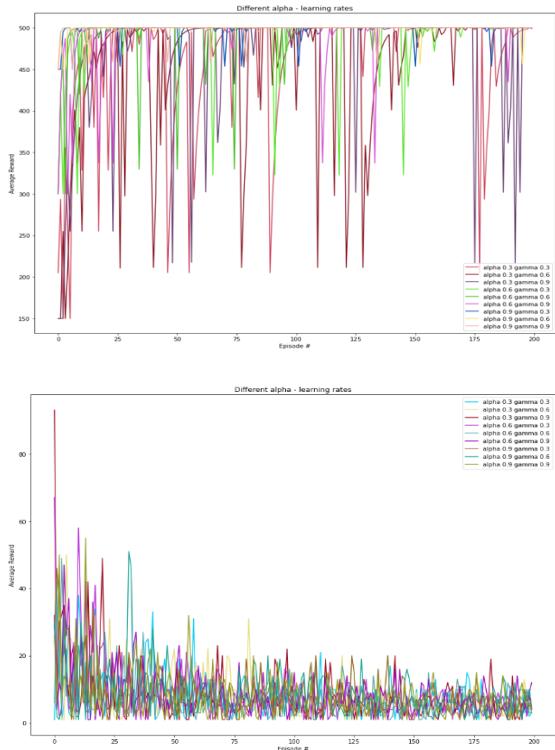


Figure 8 : Different Alpha and Gamma

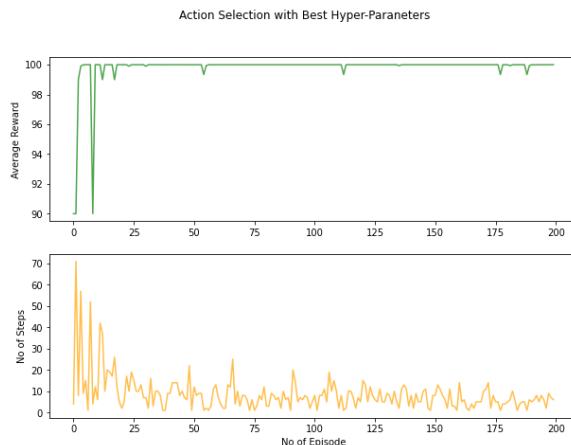


Figure 9 : Alpha 0.6 Gamma 0.9

6. ANALYSIS

The results indicate that changes in the Q learning parameters like learning rate and discount factor have a significant impact on the agent's performance. To avoid accumulation of reward and repetition of the path, the agent's initial position is chosen randomly and the environment is reset for every episode.

Learning Rate

The environment showed drastic change when the learning rates changed. As part of this study, we provided the following rates: 0.3, 0.6 and 0.9. The environment was reset with every set of hyperparameter in order to avoid accumulation of the rewards. The best results were obtained when the learning rate was 0.6.

Discount Factor

Discount factor showed great changes when tuning hyperparameter. We used the same parameters as learning rate to determine which combinations performed exceptionally well. The best results were obtained with a gamma value of 0.9 and a learning rate of 0.6.

Reward function

From the observations we could see that reward had huge impact on finding an optimal policy. The agent had to restrict movement towards the wall and should had to avoid the traps as well. For attaining this agent was given huge negative reward for the traps and as restricted from taking any action by providing 'nan' as input. Also, to choose the shortest possible path the agent was provided with negative reward of -1 for each step taken.

```
[ ] 1 get_shortest_path(3,1)
[[3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5], [4, 5]]
[ ] 1 get_shortest_path(1,1)
[[1, 1], [2, 1], [3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5]]
[ ] 1 get_shortest_path(0,4)
[[0, 4], [1, 4], [2, 4], [2, 5], [3, 5], [4, 5]]
[ ] 1 get_shortest_path(3,1)
[[3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5]]
```

Figure 10 : Results after training agent with best hyperparameters

Epsilon Decay

It was observed that the agent do not try to learn more from the environment without exploration factor (ϵ). The reward remain constant in this case. The case was similar when the ϵ was kept as a threshold of 0.6. We could observe that by applying ϵ - greedy policy the number of steps taken by the agent is more in the first few episodes which indicates the agent is trying to explore the environment. Meanwhile when higher values ($1 - \epsilon$) are provided, we could observe that the agent is trying to exploit the environment by reducing the number of steps and increasing the rewards. This observation highlights the importance of exploration factor in Q learning.

ADVANCED RINFORCEMENT LEARNING (PART 1)

1. TASK AND DOMAIN

The Basic task and advanced task selected are different. The OpenAI gym environment LunarLander -v2 is used to implement advanced reinforcement learning tasks. The objective is to land the rocket on the landing pad without crashing. The landing strip is always located at coordinates (0,0). The agent receives 100-140 points for moving from top of the screen to the landing pad and zero speed. If it moves away from the landing pad, it forfeits the reward. Episode will be completed if the lander crashes (with -100 reward) or comes to rest (with +100 reward). Apart from this each leg ground contact adds +10 reward. Firing the main engine receives -0.3 points each frame. There are four distinct actions: do nothing, fire the left orientation engine, fire the main engine, and fire the right orientation engine. The environment returns observations of the state as an array of 8 numbers.

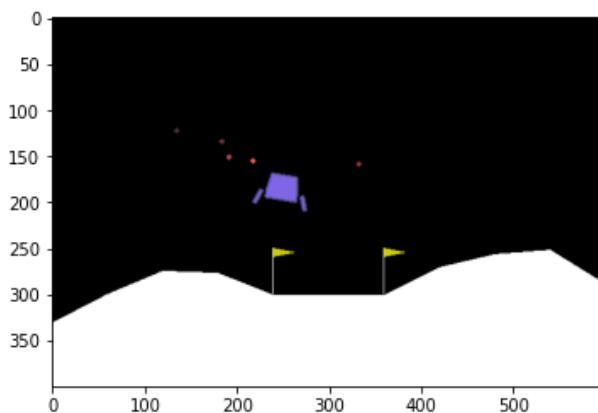


Figure 11 : Lunar Lander from Open AI gym environment

Possible State Transitions	Reward
Moving from top to bottom of the screen, zero speed	+100 to +140
Lunar lander crashes	-100
Lunar lander comes to rest	+100
For each leg ground contact of the lander	+10
Firing main engine	-0.3

A Q learning approach would be suitable for simple grid problems, but for the environments such as Lunar Lander the q matrix grows exponentially making storage and computation inefficient, thus the concept

of Deep Q Learning was developed. The core difference between Deep Q Learning and Q table based Q learning is how Q table is implemented. Deep learning approach implements the Q table in the form of neural network, thus making it more computationally efficient[6]. We aim to solve this environment using Deep Q Network (DQN), Double Deep Q Network(DDQN) and Dueling Deep Q Network.

2. DEEP Q LEARNING

Deep Q learning requires one neural network that is updated every N steps, as well as a copy of the network to have the required prediction value.

The target of the Q network is defined as follows where θ is the parameters of the Q- network (reference from lecture notes 6):

$$y_i = \mathbb{E}_{s' \sim \mathcal{E}} [r + \gamma \max_{a'} Q(s', a'; \theta_{i-1}) | s, a] \quad \dots \dots (1)$$

Loss is defined as follows for Deep Q network (refernce from lecture notes 6):

$$L_i(\theta_i) = \mathbb{E}_{s, a \sim \rho(\cdot)} [(y_i - Q(s, a; \theta_i))^2] \quad \text{with : } \begin{cases} \rho \text{ behavior policy} \\ \epsilon \text{ greedy policy} \end{cases} \quad \dots \dots (2)$$

The loss is calculated using Q target. In the study we use Mean Squared Error loss to calculate this. Stochastic Gradient decent is used and parameters are updated with mini batch of data. Thus the target remains fixed while the Q network gets updated, this is received from experiences (state, action, next state, reward) which is stored in replay buffer as a sample of mini batches of memory. When the Q network gets updated, the replay buffer selects random mini batches of memory and learns from it. Experience replay helps us to learn more from individual tuples several times, recall rare events, and make greater use of our experience in general, in addition to breaking detrimental correlations.

DQN network had 3 fully connected layers consisting of input layer of 8 units (for each state), two hidden layer of 64 and 128 units respectively and output layer of 4 units (number of possible actions). Activation function ReLU was used on the input layers and hidden layers. Mean Square Error loss is used to

calculate. The optimizer used is Adam. The agent is then trained for 2000 episodes, Figure 12.

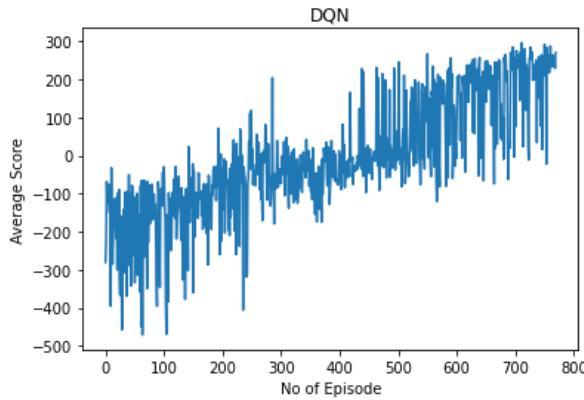


Figure 12 : DQN

To check for improvements Double DQN is implemented and agent was again trained for 2000 episodes. The approach in DDQN entails the utilization of two independent Q-value estimators, each of which is utilised to update the other[8]. For DDQN network had 3 fully connected layers consisting of input layer of 8 units similar to DQN (for each state), two hidden layer of 2*64 and 2*128 units respectively and output layer of 4 units (number of possible actions). Activation function ReLU was used on the input layers and hidden layers, Figure 13.

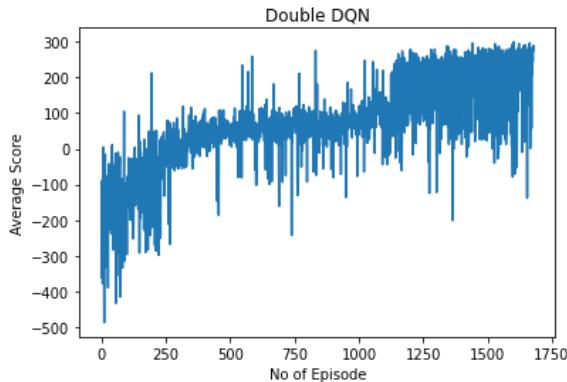


Figure 13 : DDQN

To check if this could be improved, we divide the state-dependent action advantages and state-value into two streams in Dueling DQN. The dueling architecture can learn whether states are useful or not without having to learn the result of each action for each state by explicitly separating two estimators. To combine the state value and advantage output, the neural network's final module uses forward mapping. The hidden layer consisted of 64 units for all features, values and advantage stream, Figure 14.

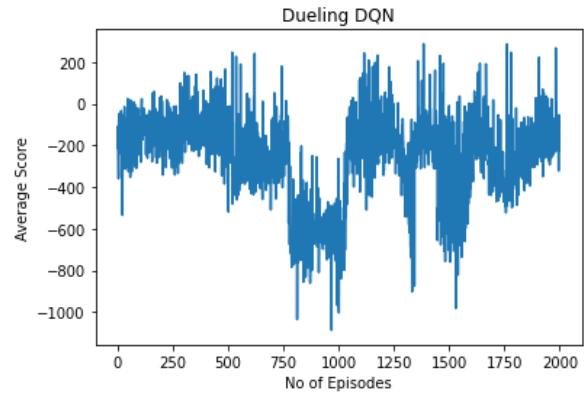


Figure 14 : Duel DQN

3. IMPLEMENTATION

For all the implementations a learning rate of 5e-4, discount factor (gamma) 0.99 was set and epsilon greedy policy was adapted. All the models were trained for 2000 episodes and early stopping was set when the agent fully learns the environment. The Q values were updated in replay buffer as a memory of training. A average score for every 100 episodes were calculated to understand how the agent is progressing.

Episode 100	Average Score: -182.63
Episode 200	Average Score: -131.66
Episode 300	Average Score: -61.97
Episode 400	Average Score: -49.02
Episode 500	Average Score: 6.97
Episode 600	Average Score: 76.39
Episode 700	Average Score: 159.14
Episode 770	Average Score: 200.70
Environment solved in 670 episodes!	
Average Score: 200.70	

Figure 15 : DQN Agent Train

Episode 100	Average Score: -160.52
Episode 200	Average Score: -99.19
Episode 300	Average Score: -41.89
Episode 400	Average Score: 22.63
Episode 500	Average Score: 41.30
Episode 600	Average Score: 51.29
Episode 700	Average Score: 49.63
Episode 800	Average Score: 55.69
Episode 900	Average Score: 62.59
Episode 1000	Average Score: 68.69
Episode 1100	Average Score: 96.71
Episode 1200	Average Score: 131.24
Episode 1300	Average Score: 186.34
Episode 1400	Average Score: 183.17
Episode 1500	Average Score: 192.08
Episode 1600	Average Score: 183.77
Episode 1680	Average Score: 200.38
Environment solved in 1580 episodes!	
Average Score: 200.38	

Figure 16 : DDQN Agent Train

4. RESULTS

For DQN, it is observed that the number of negative rewards was reducing for DQN after each iteration and the agent learns the environment in 800 episodes. Since the agent performed better for DQN, DDQN was implemented. However adding an extra hidden

layer to the network so it has 2 hidden layer each with 64 and 128 node, this has the same learning as DQN but took a longer duration, till 1750 episodes to learn the environment. On the other hand when dueling DQN was applied the agent was accumulating more negative rewards. The training looked very unstable when dueling was applied, Figure 14.

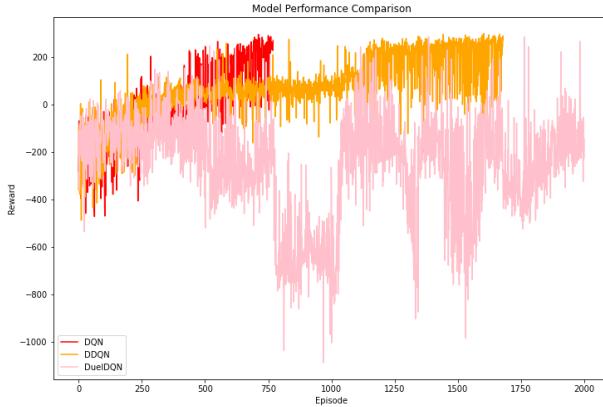


Figure 17 : Comparison - DQN - DDQN - Duel DQN

From the Figure 15, we could compare the performance of all the models, it is shown that the DQN learns faster. Also the negative rewards accumulated was very less after each episodes when compared to DDQN and Dueling DQN. Also it soon Initially the model couldn't run completely as was throwing multiple out of memory errors. Which was tackled by introducing ray runtime. Asha scheduler was also used as it can eliminate bad trials and thus helps in early stopping. The metric and mode used for scheduler was ‘episode reward mean’ and ‘max’ respectively.

fetch for optimal policy when compared to other models. Thus DQN gives better performance when compared to DDQN and DuelingDQN for the task.

ADVANCED RINFORCEMENT LEARNING (PART 2)

1. TASK AND DOMAIN

Open AI Atari 2600 gaming environment for Beam Rider-v0 is used for the evaluation of the DQN model using Ray RLlib. The learning environment in an arcade is completely deterministic[11]. In Atari it is possible to achieve high scores by simply memorizing a good action sequence, rather than learning to make good decisions in a variety of game scenarios[11].



Figure 18 : Atari Env - Beam Rider

The Atari environment chosen for this paper is Beam Rider, the objective of the game is to maximize the points by hitting the enemy and escape the fire balls. We aim to tune it with DQN. DQN has been shown to have a performance level that exceeds that of humans. The research paper used CNN based model was used whereas for this study simple neural network based model by using open source Reinforcement learning library RLlib is used.[11]

2. IMPLEMENTATION

The environment is initially trained with the default set of configurations from the DQN Ray library. Upon just 20 iterations we were able to observe that the agent was trying to maximize the score.

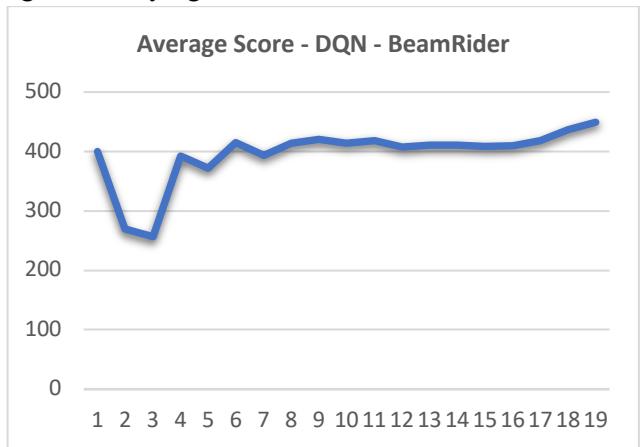


Figure 19 : Average Reward

We try to train with different set of parameters using Grid Search to identify the best set that try to maximize the score. Initially the model couldn't run

completely as was throwing multiple out of memory errors. Which was tackled by introducing ROMS and ray runtime. Asha scheduler was also used as it can eliminate bad trials and thus helps in early stopping. The metric and mode used for scheduler was ‘episode reward mean’ and ‘max’ respectively and the stopping was done with respect to 20 iterations for each set of parameters. The tuning was done in Google Colab Pro to avoid memory usage and connection resets. The Grid search tuned for 5 hours and gave the best set of parameters.

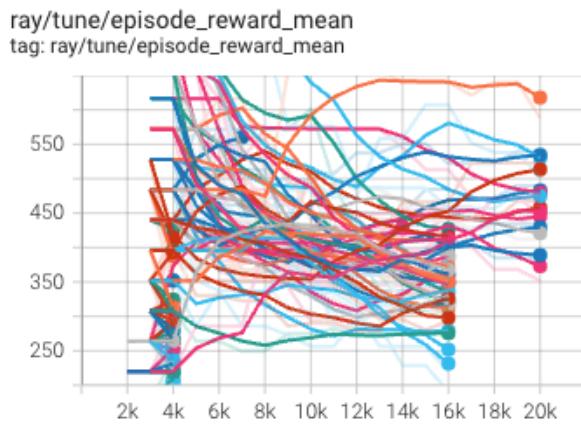


Figure 20 : Ray Tune - Grid Search

3. RESULTS

Figure 20 shows how each parameter set performs and can be observed that the best mean reward is obtained by. Figure 21

Activation function : ReLU

Hidden layers : two 32
Gamma : 0.95
Learning Rate : 0.01
Dueling : True
Double : False

With these set of parameters a DQN agent was trained multiple times totally to 350 with multiple checkpoints, and by rendering the output as videos we were able to conclude that if the environment is trained more than 5000 episodes the environment will perform drastically. Refer Figure 22 for scores after training the environment with best parameters.

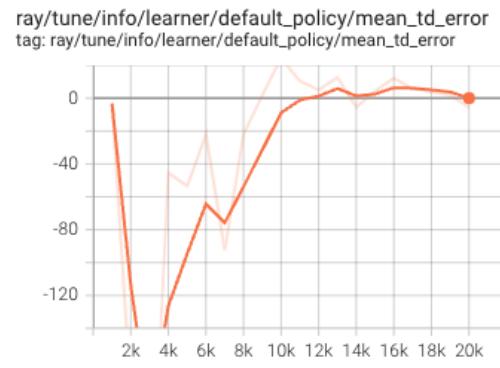


Figure 21 : Best Hyperparameter – DQN

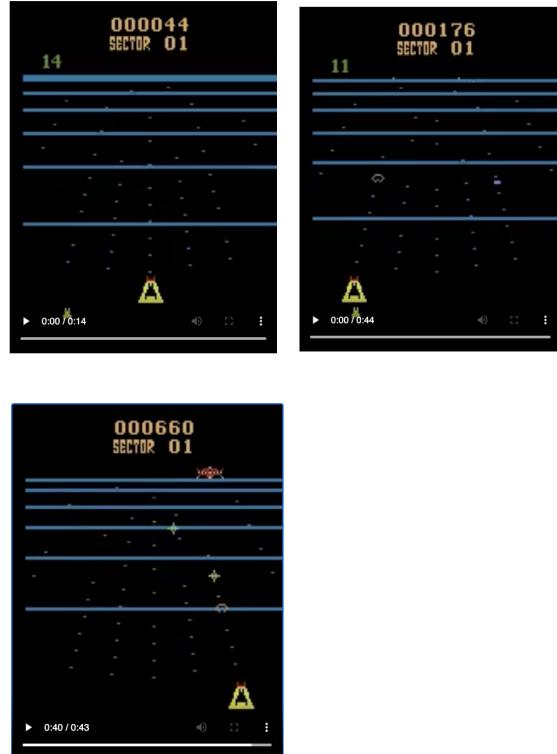


Figure 22 : Scores after training

ADVANCED RINFORCEMENT LEARNING (PART 3)

PROXIMAL POLICY OPTIMIZATION (PPO)

PPO is a policy gradient method that was proposed in 2017. When implemented by Open AI, it produced excellent results. It improves the Trust Region Policy Optimization (TRPO). Each policy update is carried out over multiple epochs of stochastic gradient ascent [10]. The Actor – Critic model, which employs two Deep Neural Networks, one taking the action (actor) and the other handling the reward, is the most common implementation of the PPO (critic). It was discovered that PPO performed better than other algorithms [10]. PPO was implemented on Open AI gym environment using RLLib for model improvement analysis. PPO was implemented in Open AI gym environment using RLLib to analyse model improvement. In order to adapt to PPO, the configuration needs to be customized. As in the paper, the clip parameter was changed to 0.3. With reference to paper [10], the parameters were provided. The graph from figure 23 shows that the model performs very well in the beginning itself. It tries to score more than 350 rewards in the first play itself when PPO was implemented .The agent was able to collect high reward throughout the episodes ----update according to your observation. The biggest downside of deploying the PPO is that it has a high computational cost and takes a long time to train. The model was just trained for 20 episodes as it was taking some time to complete the cycles. The number of episodes trained can be improved in future as part of the study to evaluate the performance of PPO.

```
nan
checkpoint save at ,
396.0
330.0
334.4
313.5
312.4
checkpoint save at ,
297.0
323.7142857142857
327.25
331.29411764705884
332.2
checkpoint save at ,
322.0
330.0
335.0769230769231
326.2068965517241
321.2
checkpoint save at ,
324.0
324.8235294117647
339.77777777777777
340.42105263157896
```

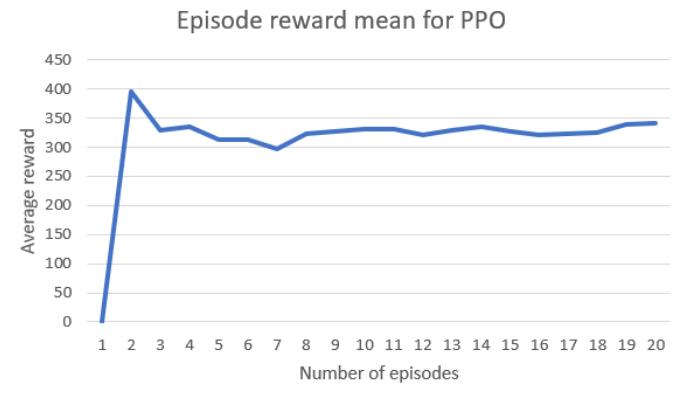


Figure 23 : PPO Implementation

FUTURE WORK

It is aspired to implement hyperparameter tuning in DQN, DDQN and DuelDQN and check if DuelDQN's performance increases. Due to computational limitations the RLLib DQN was trained only for 350 episodes, train it for more episodes.

CONTRIBUTION

Both team members actively and equally participated in the project's implementation. The plan was developed collaboratively, and the code was implemented collaboratively. Except for the Individual tasks, all implementation was done in an equal manner. I am pleased to have collaborated with my partner, and if given the opportunity, I would collaborate on additional projects with her.

Git

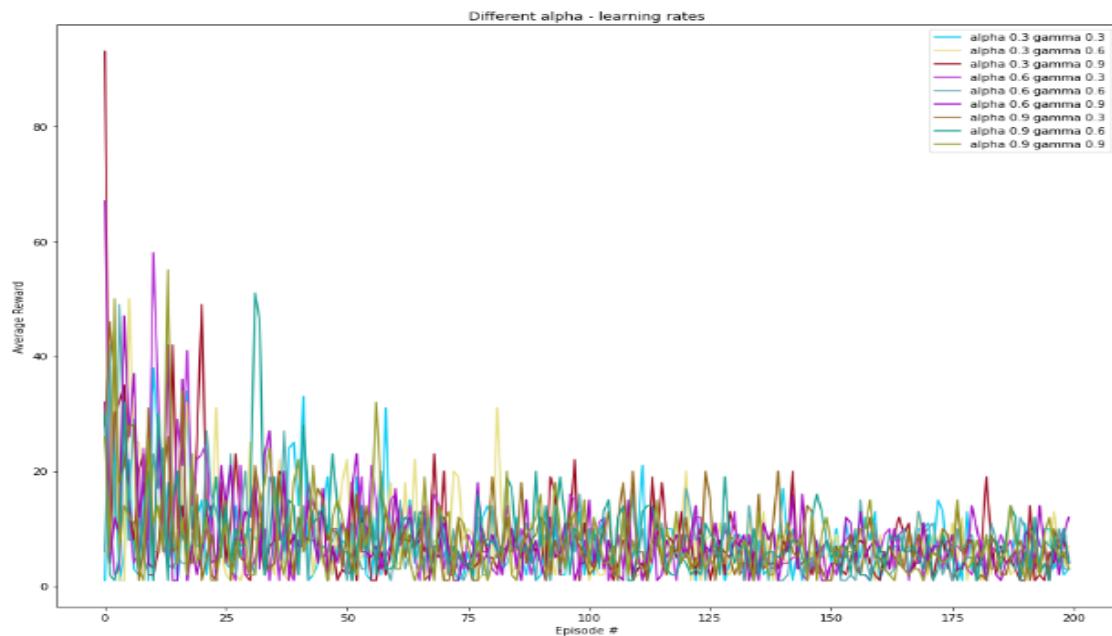
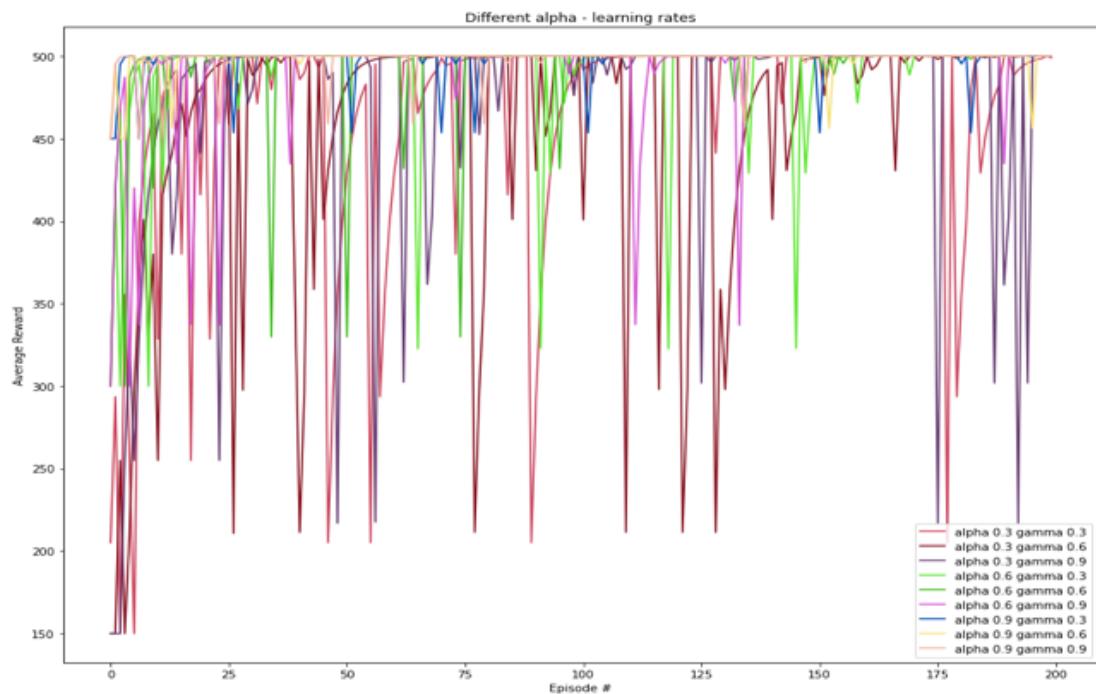
<https://github.com/ashuttii/DeepReinforcementLearning/tree/main/DRL%20CourseWork%20Submission>

References:

- [1] Mnih, V., Kavukcuoglu, K., Silver, D. *et al.* Human-level control through deep reinforcement learning. *Nature* **518**, 529–533 (2015). <https://doi.org/10.1038/nature14236>
- [2] W. Qiang and Z. Zhongli, "Reinforcement learning model, algorithms and its application," 2011 International Conference on Mechatronic Science, Electric Engineering and Computer (MEC), 2011, pp. 1143-1146, doi: 10.1109/MEC.2011.6025669.
- [3] X. Lu and H. M. Schwartz, "An investigation of guarding a territory problem in a grid world," *Proceedings of the 2010 American Control Conference*, 2010, pp. 3204-3210, doi: 10.1109/ACC.2010.5530771.
- [4] paper on heated grid world: <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9622239>

- [5] Space invaders reference paper: <https://nihit.github.io/resources/spaceinvaders.pdf>
- [6] R. S. Sadavarte, R. Raj and B. Sathish Babu, "Solving the Lunar Lander Problem using Reinforcement Learning," *2021 IEEE International Conference on Computation System and Information Technology for Sustainable Solutions (CSITSS)*, 2021, pp. 1-6, doi: 10.1109/CSITSS54238.2021.9682970.
- [7] Open AI gym Lunar Lander: <https://gym.openai.com/envs/LunarLander-v2/>
- [8] Double DQN reference paper: <https://arxiv.org/pdf/1509.06461.pdf>
- [9] Dueling DQN reference paper: <https://arxiv.org/pdf/1709.06009.pdf>
- [10] PPO reference paper : <https://arxiv.org/pdf/1707.06347.pdf>
- [11] Open AI gym Beam Rider and Space Invaders paper: Machado, Marlos & Bellemare, Marc & Talvitie, Erik & Veness, Joel & Hausknecht, Matthew & Bowling, Michael. (2017). Revisiting the Arcade Learning Environment: Evaluation Protocols and Open Problems for General Agents. *Journal of Artificial Intelligence Research*. 61. 10.1613/jair.5699. <https://arxiv.org/pdf/1709.06009.pdf>
- [12]<https://proceedings.neurips.cc/paper/2010/file/091d584fcfed301b442654dd8c23b3fc9-Paper.pdf>

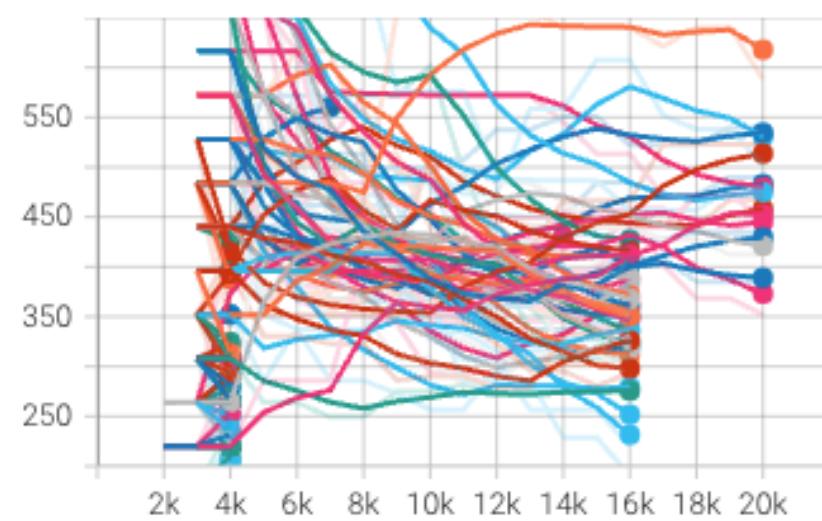
APPENDIX



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
0	-50	-1							-1																											
1	-50	-1	-50						-1																											
2		-1	-50	-1					-1																											
3			-50	-1	-1					-1																										
4				-1	-1	-1					-1																									
5					-1	-1						-50																								
6	-50								-1				-1																							
7		-1							-1	-1	-1								-1																	
8			-50						-1	-1	-1																									
9				-1					-1	-1	-1																									
10					-1				-1	-1	-50								-1																	
11						-1				-1	-50									-1																
12							-1					-1	-1							-1																
13								-1				-1	-1							-1																
14																																				
15																																				
16																																				
17																																				
18																																				
19																																				
20																																				
21																																				
22																																				
23																																				
24																																				
25																																				
26																																				
27																																				
28																																				
29																																				
30																																				
31																																				
32																																				
33																																				
34																																				
35																																				

ray/tune/episode_reward_mean

tag: ray/tune/episode_reward_mean



```
In [ ]:
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from collections import deque, namedtuple
```

Where is my Cheese ?

Problem Statement

A mice in search of cheese !

A 6×6 grid with walls and traps, a mice (agent) has to find its way to the cheese (goal state). The agent will try and learn using Q-Learning algorithm to reach the final state.

- (i) From a given point there are 4 possible actions 'up', 'down', 'left', 'right'.
- (ii) The agent cannot pass through the wall, i.e there is no action
- (iii) The agnet can step on a trap, but will gain a negative reward.

Initialization and Setting the environment

Possible actions => -1

Possible traps => -50

No possible actions => nan

Goal state => 100

```
In [ ]:
...
Initializing and setting the environmant.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimention matrix that updates the future rewards on the 4 possible actions
...
rows = 6
cols = 6
action = ['up', 'down', 'right', 'left']
S = ['A', 'B', 'C', 'D', 'E', 'F']
A = ['A', 'B', 'C', 'D', 'E', 'F']

R = np.ones((rows,cols)) * -1

walls = [(2,2), (2,3),
          (3,2)]
traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
cheese = (4,5)

for i in traps:
    R[i] = -50
for i in walls:
    R[i] = np.nan
R[cheese] = 100

Q = np.zeros((rows,cols,4))
```

R

```
Out[ ]: array([[-50., -1., -50., -1., -1., -1.],
   [-1., -1., -1., -1., -1., -50.],
   [-1., -1., nan, nan, -1., -1.],
   [-1., -1., nan, -1., -1., -1.],
   [-1., -1., -1., -1., -1., 100.],
   [-50., -1., -1., -50., -1., -1.]])
```

Training the AI Agent using Q-Learning

Random action is selected when selecting from the next possible actions, but a wall state cannot be chosen. `get_available_actions()` picks only all possible movable states. No policy is included so the agent will always choose a random action at any given state from the list of possible actions.

Discount factor of 0.9 (gamma) for the future rewards and learning rate of 0.9 (alpha) rate at which the agent should learn is initiated

```
In [ ]: gamma = 0.9      #discount_factor      #discount factor for future rewards
alpha  = 0.9      #Learning_rate.      #the rate at which the AI agent should Learn
```



```
In [ ]: #Random Start Location
def get_random_location():
    ...
    To get a random initial position for every episode.
    Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    ...
    current_row = np.random.randint(rows)
    current_col = np.random.randint(cols)
    action_index = np.random.randint(0,4)
    while R[current_row, current_col] != -1.:
        current_row = np.random.randint(rows)
        current_col = np.random.randint(cols)
        action_index = np.random.randint(0,4)
    return current_row, current_col, action_index

def immediate_rewards(c_row,c_col, action_index):
    ...
    Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
    Parameters :
        c_row - current row index
        c_col - current column index
        action_index - selected action index
    Returns :
        q value updated using the formula
    ...
    reward = R[c_row,c_col]
    q_old = Q[c_row,c_col,action_index]
    q_updated = q_old + reward
    q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])) )- q_old
    return(q_updated)

def get_available_actions(c_row,c_col):
```

```

...
Calculates all possible actions from a given state
Parameters :
    coloum index , row index
Results :
    List of all possible actions
...
current_available_actions = []

if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col] ) )):
    current_available_actions.append(0)

if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col]) ) ):
    current_available_actions.append(1)

if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
    current_available_actions.append(2)

if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1] ) )):
    current_available_actions.append(3)

# actionList = [action[x] for x in current_available_actions]

return(current_available_actions)

def next_location(c_row, c_col, action_index):
    ...
Given the current state and next action, returns the next state
Parameters :
    current row index, current column index, next action
Returns :
    new row index, new column index
    ...
new_row = c_row
new_col = c_col
if action[action_index] == 'up' :
    new_row -= 1
elif action[action_index] == 'down':
    new_row += 1
elif action[action_index] == 'right':
    new_col += 1
elif action[action_index] == 'left':
    new_col -= 1
return new_row, new_col

```

```

In [ ]: def get_next_random_action(available_actions):
    ...
Randomely chooses an action from the list of available actions
Parameters :
    available actions
Returns :
    random next action
    ...
next_action= np.random.choice(available_actions)
return next_action

```

Q-Learning with random search of actions. The iterates for 200 episodes and each episode is run until the goal state is reached. A average reward is calculated for each episode and appened to a list.

```
discount_factor = 0.9 #discount factor for future rewards
```

```
learning_rate = 0.9 #the rate at which the AI agent learns
```

In []:

```
...
Q-Learning with random search for actions
'''

def AgentTrain():
    avg_reward_per_episode=[]
    episodeList = []
    stepList=[]
    # temp=[]

    # Running 200 episodes for the agent to train
    for ep in range(200):
        episodeList.append(ep)
        # r = []
        c_row, c_col,action_index = get_random_location()
        Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index)
        scores_window = deque(maxlen=50)
        step =0

        #for each episode untill the goal state is reached the iteration runs.
        #The Q values are updated but the actions are selected at random in every iteration
        while R[c_row, c_col] != R[cheese]:
            step +=1
            rewardList = []

            #to get a List of all available actions from a given state
            available_actions = get_available_actions(c_row, c_col)

            #Selects a random action from the list of all available actions
            next_action = get_next_random_action(available_actions)

            #from the selected next action of the current statate -> the new state is identified
            old_row = c_row
            old_col = c_col
            c_row , c_col = next_location(c_row, c_col, next_action)

            #getting the reward of the new state
            reward = R[c_row,c_col]

            #updating q table with the new reward
            q_old = Q[old_row,old_col,next_action]
            q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])) )- q_old)

            # r.append(reward)

            rewardList.append(q_updated)
            scores_window.append(q_updated)
            # print('Immediate reward is {}'.format(q_updated))
            Q[old_row, old_col, next_action] = q_updated

            # temp.append(r)
            stepList.append(step)
            avg_reward_per_episode.append(sum(rewardList)/len(rewardList))
            if ep % 50 ==0:
                print('\rEpisode {} \tAverage Score: {:.2f}'.format(ep, np.mean(scores_window)))

    return episodeList ,stepList ,avg_reward_per_episode

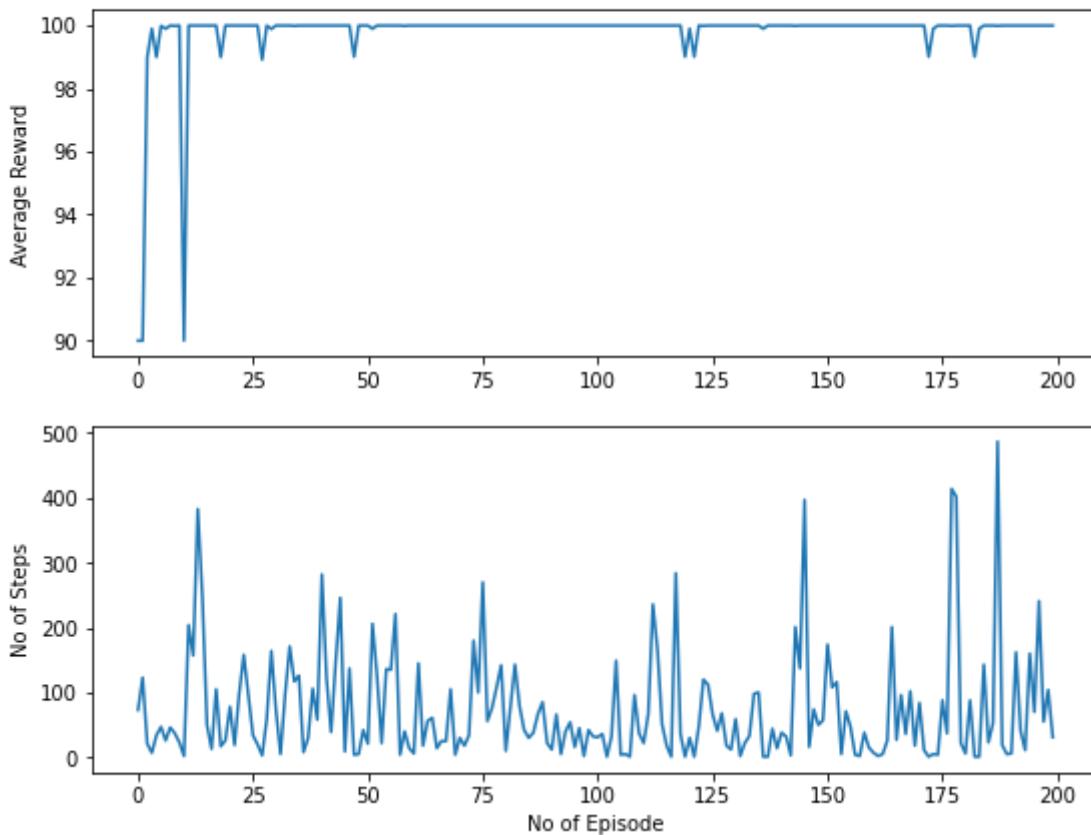
episodeList, stepList, avg_reward_per_episode = AgentTrain()
```

```
Episode 0      Average Score: -4.40
Episode 50     Average Score: 72.49
Episode 100    Average Score: 57.45
Episode 150    Average Score: 44.06
```

```
In [ ]: plt.figure(figsize=(9,7))
plt.suptitle("Action Selected Randomly")
plt.subplot(2, 1, 1)
plt.plot(episodeList, avg_reward_per_episode)
plt.ylabel('Average Reward')

plt.subplot(2, 1, 2)
plt.plot(episodeList, stepList)
plt.xlabel('No of Episode')
plt.ylabel('No of Steps')
plt.show()
```

Action Selected Randomly



Epsilon With a threshold

For a single set of Alpha, gamma, learning rate values

Q values are updated with the following formula :

$$q_{\text{updated}} = q_{\text{old}} + (\alpha \cdot (\text{reward} + \gamma \cdot \max(Q[c_row, c_col]) - q_{\text{old}}))$$

A threshold is set for epsilon, when the selected factor is less than epsilon (0.6) a random action is selected, if the selected factor is greater, the best action is selected (Q max from Q matrix)

```
In [ ]: ...
```

```

Initializing and setting the environment.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimention matrix that updates the future rewards on the 4 possible actions
```
rows = 6
cols = 6
action = ['up', 'down', 'right', 'left']
R = np.ones((rows,cols)) * -1

walls = [(2,2), (2,3),
 (3,2)]
traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
cheese = (4,5)

for i in traps:
 R[i] = -50
for i in walls:
 R[i] = np.nan
R[cheese] = 100

Q = np.zeros((rows,cols,4))

epsilon = 0.8 #the percentage of time when we should take the best action (instead
gamma = 0.9 #discount_factor #discount factor for future rewards
alpha = 0.9 #Learning_rate. #the rate at which the AI agent should Learn

```

In [ ]:

```

#Random Start Location
def get_random_location():
    ```

        To get a random initial position for every episode.
        Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    ```

 current_row = np.random.randint(rows)
 current_col = np.random.randint(cols)
 action_index = np.random.randint(0,4)
 while R[current_row, current_col] != -1.:
 current_row = np.random.randint(rows)
 current_col = np.random.randint(cols)
 action_index = np.random.randint(0,4)
 return current_row, current_col, action_index

def next_location(c_row, c_col, action_index):
    ```

        Given the current state and next action, returns the next state
    Parameters :
        current row index, current column index, next action
    Returns :
        new row index, new column index
    ```

 new_row = c_row
 new_col = c_col
 if action[action_index] == 'up' :
 new_row -= 1
 elif action[action_index] == 'down':
 new_row += 1
 elif action[action_index] == 'right':

```

```

 new_col += 1
elif action[action_index] == 'left':
 new_col -= 1
return new_row, new_col

def get_available_actions(c_row,c_col): # 0-6
 """
 Calculates all possible actions from a given state
 Parameters :
 coloum index , row index
 Results :
 List of all possible actions
 """
 current_available_actions = []

 if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col]))):
 current_available_actions.append(0)

 if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col]))):
 current_available_actions.append(1)

 if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
 current_available_actions.append(2)

 if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1]))):
 current_available_actions.append(3)

 # actionList = [action[x] for x in current_available_actions]

 return(current_available_actions)

def immediate_rewards(c_row,c_col, action_index):
 """
 Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
 Parameters :
 c_row - current row index
 c_col - current column index
 action_index - selected action index
 Returns :
 q value updated using the formula
 """
 reward = R[c_row,c_col]
 q_old = Q[c_row,c_col,action_index]
 q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]))- q_old

 return(q_updated)

```

The next action is chosen with a factor generated randomly, if the generated factor is greater than epsilon, the best action is selected (Q max from Q matrix) else a random action is selected.

```
In []: def get_next_action(available_actions, c_row, c_col,epsilon):
 """
 best action is selected from the list of available actions if factor (generated
 else a random action is selected

 Parameters :
 available actions
 Returns :

```

```

random next action
...
#Choose a best action
if np.random.random() > epsilon:
 temp = {}
 for i in available_actions:
 temp[i] = Q[c_row, c_col, i]
 next_action = max(temp, key=temp.get)

#choose a random action
else:
 next_action= np.random.choice(available_actions)
print('Choosen action {}'.format(action[next_action]))
return next_action

```

In [ ]:

```

...
Q-Learning with a threshold in choosing next actions
...

def AgentTrainwithThreshold():
 avg_reward_per_episode=[]
 episodeList = []
 stepList=[]

 # Running 200 episodes for the agent to train
 for ep in range(200):
 episodeList.append(ep)
 c_row, c_col,action_index = get_random_location()
 Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index)
 scores_window = deque(maxlen=50)
 step =0

 #for each episode untill the goal state is reached the iteration runs.
 #The Q values are updated but the actions are selected at random in every iteration
 while R[c_row, c_col] != R[cheese]:
 step +=1
 rewardList = []

 #to get a list of all available actions from a given state
 available_actions = get_available_actions(c_row, c_col)

 #next action with epsilon and threshold
 next_action = get_next_action(available_actions, c_row, c_col, epsilon)

 #from the selected next action of the current statate -> the new state is identified
 old_row = c_row
 old_col = c_col
 c_row , c_col = next_location(c_row, c_col, next_action)

 #getting the reward of the new state
 reward = R[c_row,c_col]

 #updating q table with the new reward
 q_old = Q[old_row,old_col,next_action]
 q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])))- q_o

 rewardList.append(q_updated)
 scores_window.append(q_updated)
 # print('Immediate reward is {}'.format(q_updated))
 Q[old_row, old_col, next_action] = q_updated

 stepList.append(step)
 avg_reward_per_episode.append(sum(rewardList)/len(rewardList))
 if ep % 50 ==0:

```

```

 print('\rEpisode {} \tAverage Score: {:.2f}'.format(ep, np.mean(scores_window)))

 return episodeList ,stepList ,avg_reward_per_episode

episodeList, stepList, avg_reward_per_episode = AgentTrainwithThreshold()

```

Episode 0      Average Score: -5.14  
 Episode 50     Average Score: 48.51  
 Episode 100    Average Score: 56.05  
 Episode 150    Average Score: 66.88

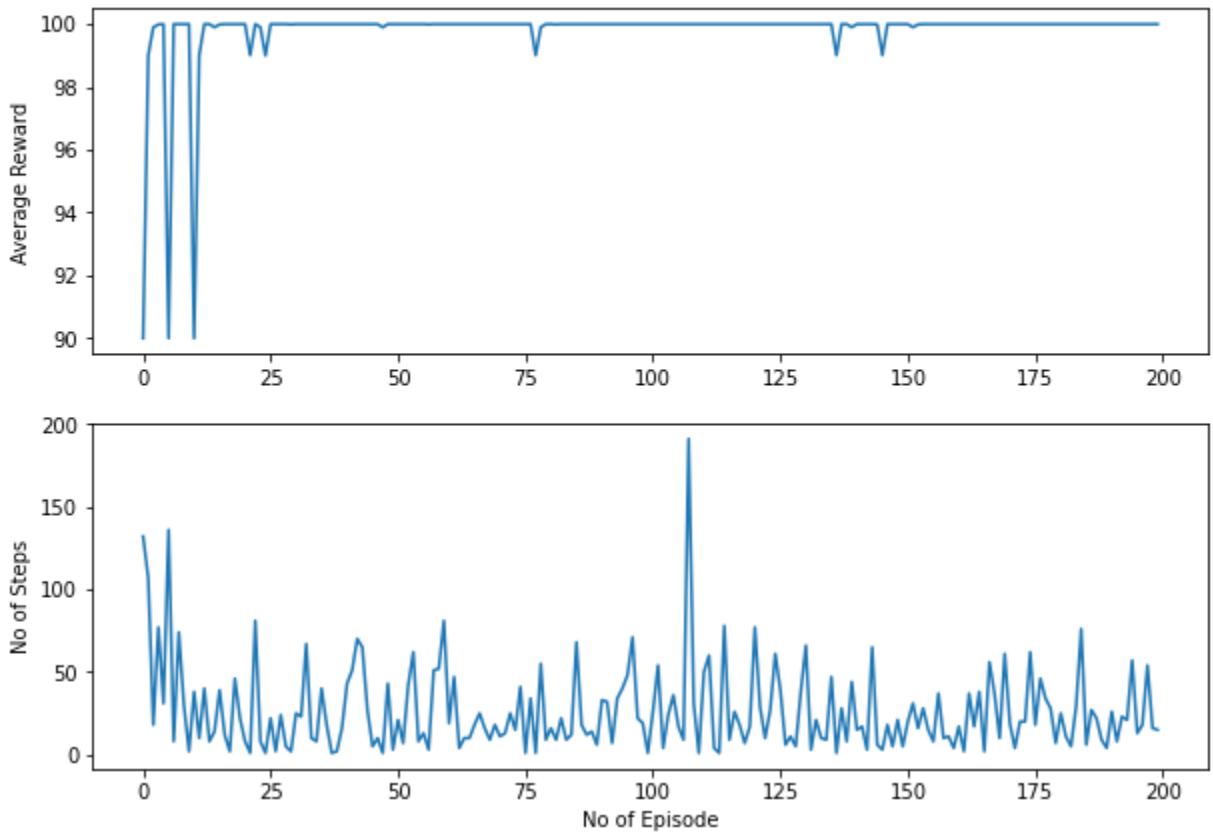
```

In []:
plt.figure(figsize=(10,7))
plt.suptitle("Action Selection with Threshold")
plt.subplot(2, 1, 1)
plt.plot(episodeList, avg_reward_per_episode)
plt.ylabel('Average Reward')

plt.subplot(2, 1, 2)
plt.plot(episodeList, stepList)
plt.xlabel('No of Episode')
plt.ylabel('No of Steps')
plt.show()

```

Action Selection with Threshold



## Epsilon Greedy Policy

*The agent is at first prompted to explore the environment and then as the number of iterations increases prompted to exploit the environment.*

For a single set of Alpha, gamma, learning rate values

Q values are updated with the following formula :

$$q_{\text{updated}} = q_{\text{old}} + (\alpha \cdot \text{reward} + \gamma \cdot \max(Q[c\_row, c\_col])) - q_{\text{old}}$$

In [ ]:

```

...
Initializing and setting the environment.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimention matrix that updates the future rewards on the 4 possible actions
```
rows = 6
cols = 6
action = ['up', 'down', 'right', 'left']
R = np.ones((rows,cols)) * -1

walls = [(2,2), (2,3),
          (3,2)]
traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
cheese = (4,5)

for i in traps:
    R[i] = -50
for i in walls:
    R[i] = np.nan
R[cheese] = 100

Q = np.zeros((rows,cols,4))

epsilon = 0.8 #the percentage of time when we should take the best action (instead
gamma = 0.9 #discount_factor      #discount factor for future rewards
alpha = 0.9 #learning_rate.     #the rate at which the AI agent should Learn

decay = 0.999
min_epsilon = 0.1

```

In []:

```

#Random Start Location
def get_random_location():
    ...
    To get a random initial position for every episode.
    Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    ...
    current_row = np.random.randint(rows)
    current_col = np.random.randint(cols)
    action_index = np.random.randint(0,4)
    while R[current_row, current_col] != -1.:
        current_row = np.random.randint(rows)
        current_col = np.random.randint(cols)
        action_index = np.random.randint(0,4)
    return current_row, current_col, action_index

def next_location(c_row, c_col, action_index):
    ...
    Given the current state and next action, returns the next state
    Parameters :
        current row index, current column index, next action

```

```

Returns :
    new row index, new column index
    ...
new_row = c_row
new_col = c_col
if action[action_index] == 'up' :
    new_row -= 1
elif action[action_index] == 'down':
    new_row += 1
elif action[action_index] == 'right':
    new_col += 1
elif action[action_index] == 'left':
    new_col -= 1
return new_row, new_col

def get_available_actions(c_row,c_col): # 0 6
    ...
    Calculates all possible actions from a given state
Parameters :
    coloum index , row index
Results :
    List of all possible actions
    ...
current_available_actions = []

if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col] ) )):
    current_available_actions.append(0)

if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col]) ) ):
    current_available_actions.append(1)

if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
    current_available_actions.append(2)

if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1] ) )):
    current_available_actions.append(3)

actionlist = [action[x] for x in current_available_actions]

return(current_available_actions)

def immediate_rewards(c_row,c_col, action_index):
    ...
    Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
Parameters :
    c_row - current row index
    c_col - current column index
    action_index - selected action index
Returns :
    q value updated using the formula
    ...
reward = R[c_row,c_col]
q_old = Q[c_row,c_col,action_index]
q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]) )- q_old

return(q_updated)

```

In []:

```
def get_next_action(available_actions, c_row, c_col,epsilon):
```

```

best action is selected from the list of available actions if factor (generated
else a random action is selected

Parameters :
    available actions
Returns :
    random next action
...
#Choose a best action
if np.random.random() > epsilon:
    temp = {}
    for i in available_actions:
        temp[i] = Q[c_row, c_col, i]
    next_action = max(temp, key=temp.get)

else: #choose a random action
    next_action= np.random.choice(available_actions)
return next_action

def update_epsilon(epsilon,decay, min_epsilon):
...
if epsilon is > 0.5, multiplying epsilon with 0.999 else multiplying epsilon with 0
Parameters :
    epsilon
Returns :
    updated epsilon
...
epsilon = max(min_epsilon, epsilon*decay)
return epsilon

```

In []:

```

...
Q-Learning with a threshold in choosing next actions
...

def AgentTrainwithThreshold(epsilon = 0.8, gamma = 0.9, alpha = 0.9, decay = 0.999,
avg_reward_per_episode=[]
episodeList = []
stepList=[]

# Running 200 episodes for the agent to train
for ep in range(200):
    episodeList.append(ep)
    r = []
    c_row, c_col,action_index = get_random_location()
    Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index)
    scores_window = deque(maxlen=50)
    step =0

    #for each episode untill the goal state is reached the iteration runs.
    #The Q values are updated but the actions are selected at random in every iteration
    while R[c_row, c_col] != R[cheese]:
        step +=1
        rewardList = []

        #to get a list of all available actions from a given state
        available_actions = get_available_actions(c_row, c_col)

        #update epsilon for every iteration as the agents should explore first and explore
        # epsilon = max(min_epsilon, epsilon*decay)
        epsilon = update_epsilon(epsilon, decay, min_epsilon)

        #next action

```

```

next_action = get_next_action(available_actions, c_row, c_col, epsilon)

old_row = c_row
old_col = c_col

c_row, c_col = next_location(c_row, c_col, next_action)

#getting the reward of the new state
reward = R[c_row,c_col]
#updating q table with the new reward
q_old = Q[old_row,old_col,next_action]
q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])) )- q_o

rewardList.append(q_updated)
scores_window.append(q_updated)
# print('Immediate reward is {}'.format(q_updated))
Q[old_row, old_col, next_action] = q_updated

stepList.append(step)
avg_reward_per_episode.append(sum(rewardList)/len(rewardList))
if ep % 50 ==0:
    print('\rEpisode {} \tAverage Score: {:.2f}'.format(ep, np.mean(scores_window)))

return episodeList ,stepList ,avg_reward_per_episode

```

```
episodeList, stepList, avg_reward_per_episode = AgentTrainwithThreshold(epsilon = 0.
```

```

Episode 0      Average Score: 3.78
Episode 50     Average Score: 75.79
Episode 100    Average Score: 99.01
Episode 150    Average Score: 54.25

```

In []:

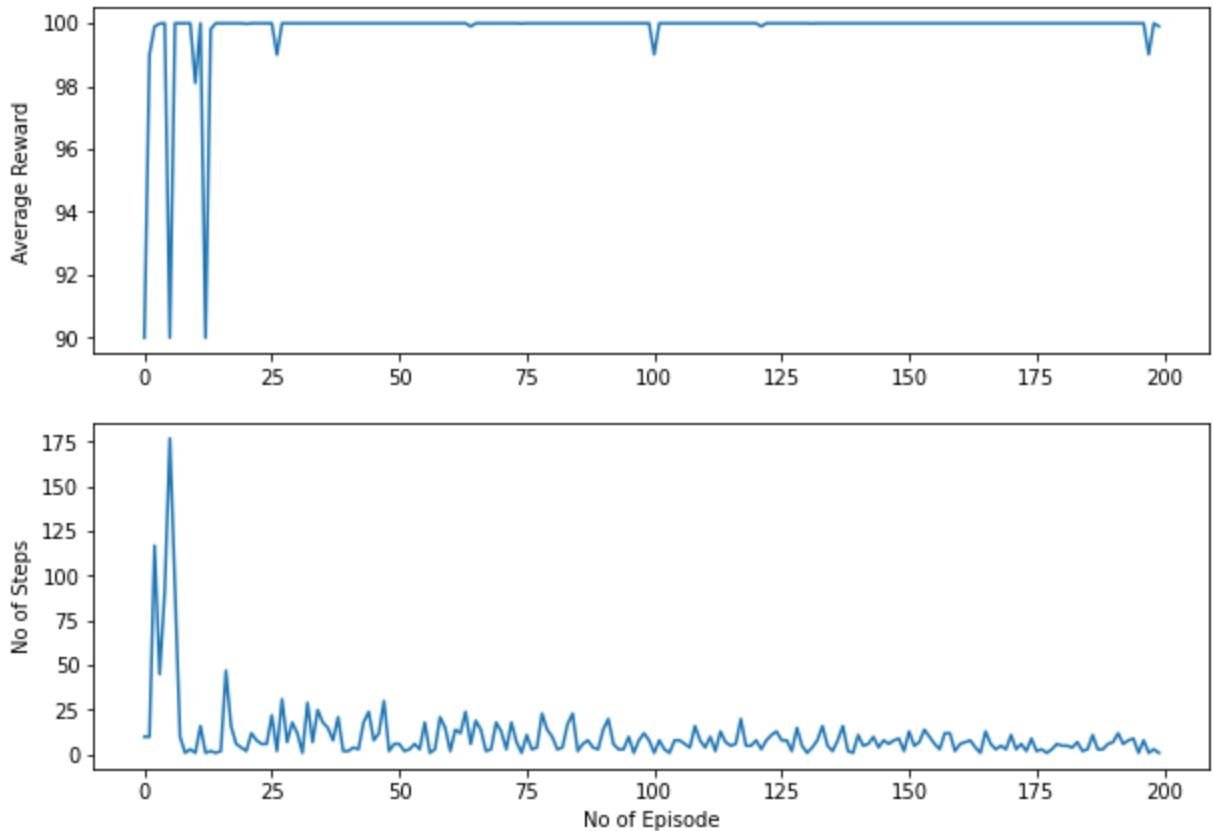
```

plt.figure(figsize=(10,7))
plt.suptitle("Action Selection with Epsilon Greedy Policy")
plt.subplot(2, 1, 1)
plt.plot(episodeList, avg_reward_per_episode)
plt.ylabel('Average Reward')

plt.subplot(2, 1, 2)
plt.plot(episodeList, stepList)
plt.xlabel('No of Episode')
plt.ylabel('No of Steps')
plt.show()

```

Action Selection with Epsilon Greedy Policy



Alpha - Hyperparameter

Alpha is the learning rate. Training the agent with various learning rates to identify the best parameter. Gamma is given a constant value of 0.9

```
In [ ]: ...
Initializing and setting the environment.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimension matrix that updates the future rewards on the 4 possible actions
with various alpha-gamma combination --> to find out which is the best set of parameters
...
gamma = 0.9
alphaList = [0.3, 0.6, 0.9]

def env_reset():
    rows = 6
    cols = 6
    action = ['up', 'down', 'right', 'left']
    R = np.ones((rows,cols)) * -1

    walls = [(2,2), (2,3),
              (3,2)]
    traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
    cheese = (4,5)

    for i in traps:
        R[i] = -50
    for i in walls:
        R[i] = np.nan
    R[cheese] = 500
```

```

Q = np.zeros((rows,cols,4))
epsilon = 0.8 #the percentage of time when we should take the best action (instead
               #of a random one)

return R, Q, action, epsilon

#Learning_rate.      #the rate at which the AI agent should Learn

```

In []:

```

#Random Start Location
def get_random_location():
    """
    To get a random initial position for every episode.
    Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    """

    current_row = np.random.randint(rows)
    current_col = np.random.randint(cols)
    action_index = np.random.randint(0,4)
    while R[current_row, current_col] != -1.:
        current_row = np.random.randint(rows)
        current_col = np.random.randint(cols)
        action_index = np.random.randint(0,4)
    return current_row, current_col, action_index


def next_location(c_row, c_col, action_index):
    """
    Given the current state and next action, returns the next state
    Parameters :
        current row index, current column index, next action
    Returns :
        new row index, new column index
    """

    new_row = c_row
    new_col = c_col
    if action[action_index] == 'up' :
        new_row -= 1
    elif action[action_index] == 'down':
        new_row += 1
    elif action[action_index] == 'right':
        new_col += 1
    elif action[action_index] == 'left':
        new_col -= 1
    return new_row, new_col


def get_available_actions(c_row,c_col): # 0 6
    """
    Calculates all possible actions from a given state
    Parameters :
        coloum index , row index
    Results :
        List of all possible actions
    """

    current_available_actions = []

    if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col] ) )):
        current_available_actions.append(0)

```

```

if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col]) ) ):
    current_available_actions.append(1)

if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
    current_available_actions.append(2)

if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1] ) )):
    current_available_actions.append(3)

actionlist = [action[x] for x in current_available_actions]

return(current_available_actions)

def immediate_rewards(c_row,c_col, action_index,alpha):
    ...
    Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
Parameters :
    c_row - current row index
    c_col - current column index
    action_index - selected action index
Returns :
    q value updated using the formula
    ...
    reward = R[c_row,c_col]
    q_old = Q[c_row,c_col,action_index]
    q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]) )- q_old

    return(q_updated)

```

In []:

```

def get_next_action(available_actions, c_row, c_col,epsilon):
    ...
    best action is selected from the list of available actions if factor (generated
else a random action is selected

Parameters :
    available actions
Returns :
    random next action
    ...
#Choose a best action
if np.random.random() > epsilon:
    temp = {}
    for i in available_actions:
        temp[i] = Q[c_row, c_col, i]
    next_action = max(temp, key=temp.get)

#choose a random action
else:
    next_action= np.random.choice(available_actions)
return next_action

def update_epsilon(epsilon,decay, min_epsilon):
    ...
    returns max epsilon
Parameters :
    epsilon
Returns :
    updated epsilon
    ...

```

```
epsilon = max(min_epsilon, epsilon*decay)
return epsilon
```

In []:

```
...
Q-Learning with a threshold in choosing next actions
...

def AgentTrainwithThreshold(epsilon = 0.8, gamma = 0.9, alphaList = 0.9, decay = 0.

    avg_reward_per_episode=[]
    episodeList = []
    stepList=[]
    allList = []
    stList = []
    for alpha in alphaList:

        R, Q, action, epsilon = env_reset()
        print(epsilon)
        episodeList = []
        avg_reward_per_episode=[]
        stepList=[]

        # Running 200 episodes for the agent to train
        for ep in range(300):
            episodeList.append(ep)
            r = []
            c_row, c_col,action_index = get_random_location()
            Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index,alpha)
            scores_window = deque(maxlen=50)
            step =0

            #for each episode untill the goal state is reached the iteration runs.
            #The Q values are updated but the actions are selected at random in every iter
            while R[c_row, c_col] != R[cheese]:
                step +=1

                rewardList = []

                #to get a list of all available actions from a given state
                available_actions = get_available_actions(c_row, c_col)

                #update epsilon for every iteration as the agents should explore first and e
                epsilon = update_epsilon(epsilon,decay, min_epsilon)

                #next action
                next_action = get_next_action(available_actions, c_row, c_col, epsilon)

                old_row = c_row
                old_col = c_col

                c_row , c_col = next_location(c_row, c_col, next_action)
                #getting the reward of the new state
                reward = R[c_row,c_col]
                #updating q table with the new reward
                q_old = Q[old_row,old_col,next_action]
                q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])) - q

                r.append(reward)

                rewardList.append(q_updated)
                scores_window.append(q_updated)
                # print('Immediate reward is {}'.format(q_updated))
```

```

Q[old_row, old_col, next_action] = q_updated

stepList.append(step)
avg_reward_per_episode.append(sum(rewardList)/len(rewardList))
# if ep % 50 ==0:
#   print('\rEpisode {} \tAverage Score: {:.2f}'.format(ep, np.mean(scores_wind

allList.append(avg_reward_per_episode)
stList.append(stepList)

return episodeList, stList, allList

gamma = 0.9 # [0.3, 0.6, 0.9]
alphaList = [0.3, 0.6, 0.9]
episodeList, stList, allList = AgentTrainwithThreshold(epsilon = 0.8, alphaList=alpha

```

0.8
0.8
0.8

In []:

```

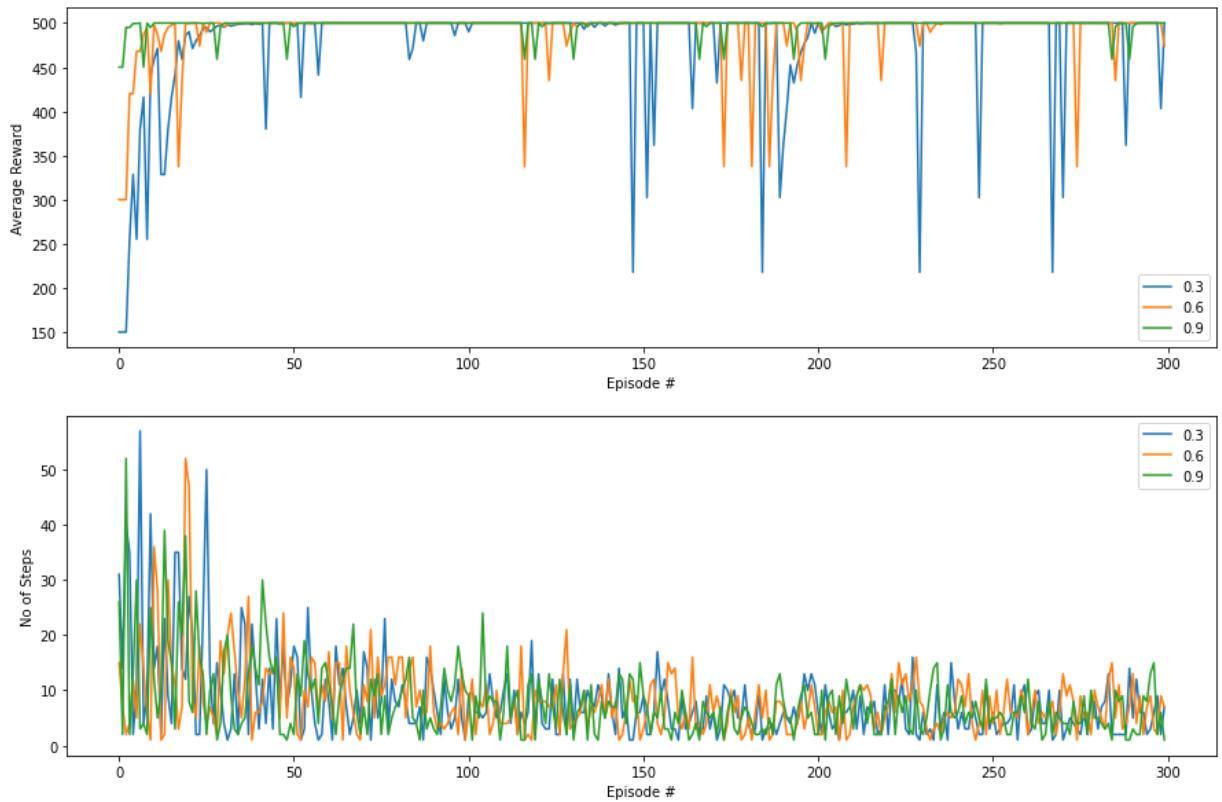
plt.figure(figsize=(15,10))
plt.suptitle("Action Selection with different learning rate")
plt.subplot(2, 1, 1)
plt.plot(episodeList, allList[0] , label='alpha 0.3')
plt.plot(episodeList, allList[1] , label='alpha 0.6')
plt.plot(episodeList, allList[2] , label='alpha 0.9')
plt.legend(alphaList)
plt.xlabel('Episode #')
plt.ylabel('Average Reward')

plt.subplot(2, 1, 2)
plt.plot(episodeList, stList[0] , label='alpha 0.3')
plt.plot(episodeList, stList[1] , label='alpha 0.6')#, alpha = 0.5
plt.plot(episodeList, stList[2] , label='alpha 0.9')#, alpha=0.5
plt.legend(alphaList)
plt.xlabel('Episode #')
plt.ylabel('No of Steps')

plt.show()

```

Action Selection with different learning rate



Hyperparameter tuning Alpha and Gamma

Alpha -> learning rate

Gamma -> discount factor

Training the agent with various alpha - gamma combination to identify the best combinations.

Policy - Epsilon greedy policy

In []:

```
...
Initializing and setting the environment.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimention matrix that updates the future rewards on the 4 possible actions
with various alpha-gamma combination --> to find out which is the best set of parameters
...
gammaList = [0.3, 0.6, 0.9]      #discount_factor      #discount factor for future rewards
alphaList = [0.3, 0.6, 0.9]

def env_reset():
    rows = 6
    cols = 6
    action = ['up', 'down', 'right', 'left']
    R = np.ones((rows,cols)) * -1

    walls = [(2,2), (2,3),
              (3,2)]
    traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
    cheese = (4,5)

    for i in traps:
        R[i] = -50
```

```

for i in walls:
    R[i] = np.nan
R[cheese] = 500

Q = np.zeros((rows,cols,4))
epsilon = 0.8 #the percentage of time when we should take the best action (instead

return R, Q, action, epsilon

```

In []:

```

#Random Start Location
def get_random_location():
    """
    To get a random initial position for every episode.
    Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    """

    current_row = np.random.randint(rows)
    current_col = np.random.randint(cols)
    action_index = np.random.randint(0,4)
    while R[current_row, current_col] != -1:
        current_row = np.random.randint(rows)
        current_col = np.random.randint(cols)
        action_index = np.random.randint(0,4)
    return current_row, current_col, action_index


def next_location(c_row, c_col, action_index):
    """
    Given the current state and next action, returns the next state
    Parameters :
        current row index, current column index, next action
    Returns :
        new row index, new column index
    """

    new_row = c_row
    new_col = c_col
    if action[action_index] == 'up':
        new_row -= 1
    elif action[action_index] == 'down':
        new_row += 1
    elif action[action_index] == 'right':
        new_col += 1
    elif action[action_index] == 'left':
        new_col -= 1
    return new_row, new_col


def get_available_actions(c_row,c_col): # 0 6
    """
    Calculates all possible actions from a given state
    Parameters :
        coloum index , row index
    Results :
        List of all possible actions
    """

    current_available_actions = []

    if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col] ))):

```

```

        current_available_actions.append(0)

    if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col])) ):
        current_available_actions.append(1)

    if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
        current_available_actions.append(2)

    if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1] ) )):
        current_available_actions.append(3)

    actionlist = [action[x] for x in current_available_actions]

    return(current_available_actions)
}

def immediate_rewards(c_row,c_col, action_index,alpha,gamma):
    ...
    Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
Parameters :
    c_row - current row index
    c_col - current column index
    action_index - selected action index
Returns :
    q value updated using the formula
    ...

    reward = R[c_row,c_col]
    q_old = Q[c_row,c_col,action_index]
    q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]) )- q_old

    return(q_updated)
}

```

In []:

```

def get_next_action(available_actions, c_row, c_col,epsilon):
    ...
    best action is selected from the list of available actions if factor (generated
else a random action is selected

Parameters :
    available actions
Returns :
    random next action
    ...

#Choose a best action
if np.random.random() > epsilon:
    temp = {}
    for i in available_actions:
        temp[i] = Q[c_row, c_col, i]
    next_action = max(temp, key=temp.get)

#choose a random action
else:
    next_action= np.random.choice(available_actions)
return next_action

def update_epsilon(epsilon,decay, min_epsilon):
    ...
    returns max epsilon
Parameters :
    epsilon
Returns :

```

```

    updated epsilon
    ...
epsilon = max(min_epsilon, epsilon*decay)
return epsilon

```

In []:

```

...
Q-Learning with a threshold in choosing next actions
...

def AgentTrainwithThreshold(epsilon = 0.8, gammaList = 0.9, alphaList = 0.9, decay

avg_reward_per_episode=[]
episodeList = []
stepList=[]
agList = {}
sgList = {}
for alpha in alphaList:
    for gamma in gammaList:
        R, Q, action, epsilon = env_reset()

        episodeList = []
        avg_reward_per_episode=[]
        stepList=[]
        # Running 200 episodes for the agent to train
        for ep in range(200):
            episodeList.append(ep)
            r = []
            c_row, c_col,action_index = get_random_location()
            Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index,a
            scores_window = deque(maxlen=50)
            step =0

#for each episode untill the goal state is reached the iteration runs.
#The Q values are updated but the actions are selected at random in every iter
            while R[c_row, c_col] != R[cheese]:
                step +=1
                rewardList = []
                #to get a list of all available actions from a given state
                available_actions = get_available_actions(c_row, c_col)

                #update epsilon for every iteration as the agents should explore first and
                epsilon = update_epsilon(epsilon,decay, min_epsilon)

                #next action
                next_action = get_next_action(available_actions, c_row, c_col, epsilon)
                old_row = c_row
                old_col = c_col
                c_row , c_col = next_location(c_row, c_col, next_action)

                #getting the reward of the new state
                reward = R[c_row,c_col]
                q_old = Q[old_row,old_col,next_action]

                #updating q table with the new reward
                q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]) )-
                r.append(reward)
                rewardList.append(q_updated)
                scores_window.append(q_updated)
                # print('Immediate reward is {}'.format(q_updated))
                Q[old_row, old_col, next_action] = q_updated

                stepList.append(step)

```

```

        avg_reward_per_episode.append(sum(rewardList)/len(rewardList))
        key = 'alpha ' + str(alpha) + ' gamma ' +str(gamma)
        agList.update({key : avg_reward_per_episode })
        sgList.update({key : stepList})
    return episodeList, sgList, agList

# agList.append(avg_reward_per_episode)
# stList.append(stepList)
gammaList = [0.3, 0.6, 0.9]
alphaList = [0.3, 0.6, 0.9]
episodeList, sgList, agList = AgentTrainwithThreshold(epsilon = 0.8, alphaList=alpha

```

In []:

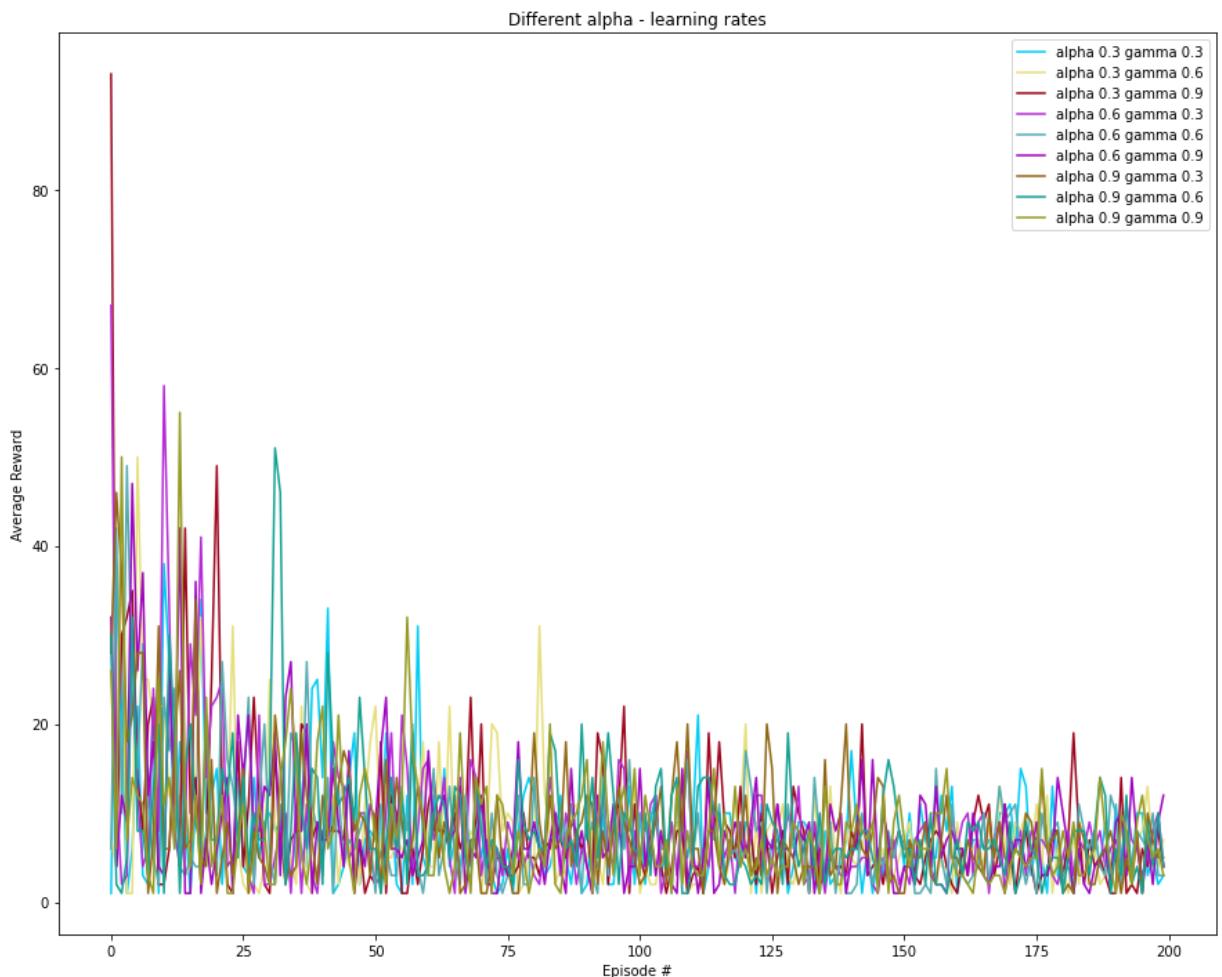
```

plt.figure(figsize=(15,12))
for i, j in sgList.items():
    plt.plot(episodeList, sgList[i], color = np.random.rand(3,), label=i)

plt.xlabel('Episode #')
plt.ylabel('Average Reward')
plt.legend(agList)
plt.title('Different alpha - learning rates')

```

Out[]: Text(0.5, 1.0, 'Different alpha - learning rates')



In []:

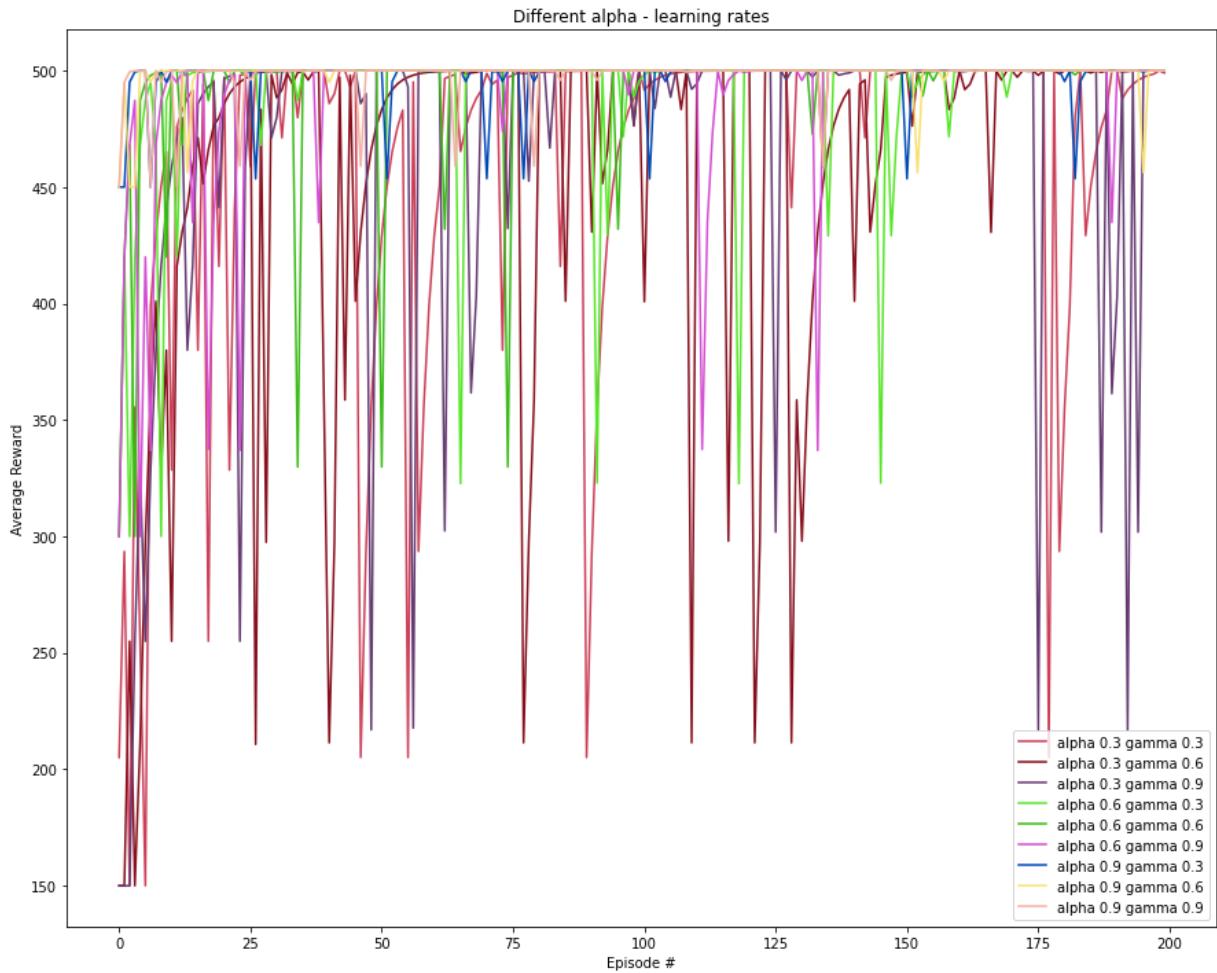
```

plt.figure(figsize=(15,12))
for i, j in agList.items():
    plt.plot(episodeList, agList[i], color = np.random.rand(3,), label=i)

plt.xlabel('Episode #')
plt.ylabel('Average Reward')
plt.legend(agList)
plt.title('Different alpha - learning rates')

```

Out[]: Text(0.5, 1.0, 'Different alpha - learning rates')



Final Result with best parameters of Alpha and Gamma

Alpha = 0.9

gamma = 0.6

epsilon = epsilon greedy policy

In []:

```
...
Initializing and setting the environment.
R is a 6*6 matrix with possible state and actions.
Q is a 4 dimention matrix that updates the future rewards on the 4 possible actions
...
rows = 6
cols = 6
action = ['up', 'down', 'right', 'left']
R = np.ones((rows,cols)) * -1

walls = [(2,2), (2,3),
          (3,2)]
traps = [(0,0), (0,2), (1,5), (5,0), (5,3)]
cheese = (4,5)

for i in traps:
    R[i] = -50
for i in walls:
```

```
R[i] = np.nan
R[cheese] = 100

Q = np.zeros((rows,cols,4))
```

Selected the best parameters after hyperparameter tuning

```
In [ ]:
...
Best set of Hyperparameters
...
epsilon = 0.8 #the percentage of time when we should take the best action (instead
gamma = 0.9 #discount_factor #discount factor for future rewards
alpha = 0.6 #Learning_rate. #the rate at which the AI agent should Learn
```

```
In [ ]:
#Random Start Location
def get_random_location():
    ...

    To get a random initial position for every episode.
    Will initiate only in a possible state (-1), will not start in a wall state (nan)
    Parameters :
        Null
    Returns :
        current row index, current column index, action selected
    ...
    current_row = np.random.randint(rows)
    current_col = np.random.randint(cols)
    action_index = np.random.randint(0,4)
    while R[current_row, current_col] != -1.:
        current_row = np.random.randint(rows)
        current_col = np.random.randint(cols)
        action_index = np.random.randint(0,4)
    return current_row, current_col, action_index
```

```
def next_location(c_row, c_col, action_index):
    ...

    Given the current state and next action, returns the next state
    Parameters :
        current row index, current column index, next action
    Returns :
        new row index, new column index
    ...
    new_row = c_row
    new_col = c_col
    if action[action_index] == 'up' :
        new_row -= 1
    elif action[action_index] == 'down':
        new_row += 1
    elif action[action_index] == 'right':
        new_col += 1
    elif action[action_index] == 'left':
        new_col -= 1
    return new_row, new_col
```

```
def get_available_actions(c_row,c_col): # 0 6
    ...

    Calculates all possible actions from a given state
    Parameters :
```

```

        coloum index , row index
Results :
    List of all possible actions
...
current_available_actions = []

if((c_row-1 >=0) and (~np.isnan(R[c_row-1, c_col] ) )):
    current_available_actions.append(0)

if((c_row+1 < rows) and (~np.isnan(R[c_row+1, c_col]) ) ):
    current_available_actions.append(1)

if((c_col+1 < cols) and (~np.isnan(R[c_row, c_col+1]))):
    current_available_actions.append(2)

if((c_col-1 >=0) and (~np.isnan(R[c_row, c_col-1] ) )):
    current_available_actions.append(3)

actionlist = [action[x] for x in current_available_actions]

return(current_available_actions)

```



```

def immediate_rewards(c_row,c_col, action_index):
...
    Calculates immidiate reward with formula q_updated = q_old + (alpha * (reward +
Parameters :
    c_row - current row index
    c_col - current column index
    action_index - selected action index
Returns :
    q value updated using the formula
...
    reward = R[c_row,c_col]
    q_old = Q[c_row,c_col,action_index]
    q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col]) )- q_old

return(q_updated)

```

In []:

```

def get_next_action(available_actions, c_row, c_col,epsilon):
...
    best action is selected from the list of available actions if factor (generated
else a random action is selected

Parameters :
    available actions
Returns :
    random next action
...
#Choose a best action
if np.random.random() > epsilon:
    temp = {}
    for i in available_actions:
        temp[i] = Q[c_row, c_col, i]
    next_action = max(temp, key=temp.get)

else: #choose a random action
    next_action= np.random.choice(available_actions)
return next_action

def update_epsilon(epsilon,decay, min_epsilon):

```

```

...
if epsilon is > 0.5, multiplying epsilon with 0.999 else multiplying epsilon with 0
Parameters :
    epsilon
Returns :
    updated epsilon
...
epsilon = max(min_epsilon, epsilon*decay)
return epsilon

```

In []:

```

...
Q-Learning with best set of hyperparameters
...

def AgentTrainwithThreshold(epsilon = 0.8, gamma = 0.9, alpha = 0.9, decay = 0.999,
    avg_reward_per_episode=[]
    episodeList = []
    stepList=[]

# Running 200 episodes for the agent to train
for ep in range(200):
    episodeList.append(ep)
    r = []
    c_row, c_col,action_index = get_random_location()
    Q[c_row, c_col,action_index] = immediate_rewards(c_row, c_col,action_index)
    scores_window = deque(maxlen=50)
    step =0

#for each episode untill the goal state is reached the iteration runs.
#The Q values are updated but the actions are selected at random in every iteration
while R[c_row, c_col] != R[cheese]:
    step +=1
    rewardList = []

    #to get a list of all available actions from a given state
    available_actions = get_available_actions(c_row, c_col)

    #update epsilon for every iteration as the agents should explore first and exploit
    # epsilon = max(min_epsilon, epsilon*decay)
    epsilon = update_epsilon(epsilon, decay, min_epsilon)

    #next action
    next_action = get_next_action(available_actions, c_row, c_col, epsilon)

    old_row = c_row
    old_col = c_col

    c_row , c_col = next_location(c_row, c_col, next_action)

    #getting the reward of the new state
    reward = R[c_row,c_col]
    #updating q table with the new reward
    q_old = Q[old_row,old_col,next_action]
    q_updated = q_old + (alpha * (reward + gamma * (np.max(Q[c_row, c_col])) )- q_o

    rewardList.append(q_updated)
    scores_window.append(q_updated)
    # print('Immediate reward is {}'.format(q_updated))
    Q[old_row, old_col, next_action] = q_updated

    stepList.append(step)
    avg_reward_per_episode.append(sum(rewardList)/len(rewardList))

```

```

if ep % 50 ==0:
    print('\rEpisode {} \tAverage Score: {:.2f}'.format(ep, np.mean(scores_window)))

return episodeList ,stepList ,avg_reward_per_episode

```

episodeList, stepList, avg_reward_per_episode = AgentTrainwithThreshold(epsilon = 0.

Episode 0 Average Score: 10.80
 Episode 50 Average Score: 68.17
 Episode 100 Average Score: 73.53
 Episode 150 Average Score: 73.47

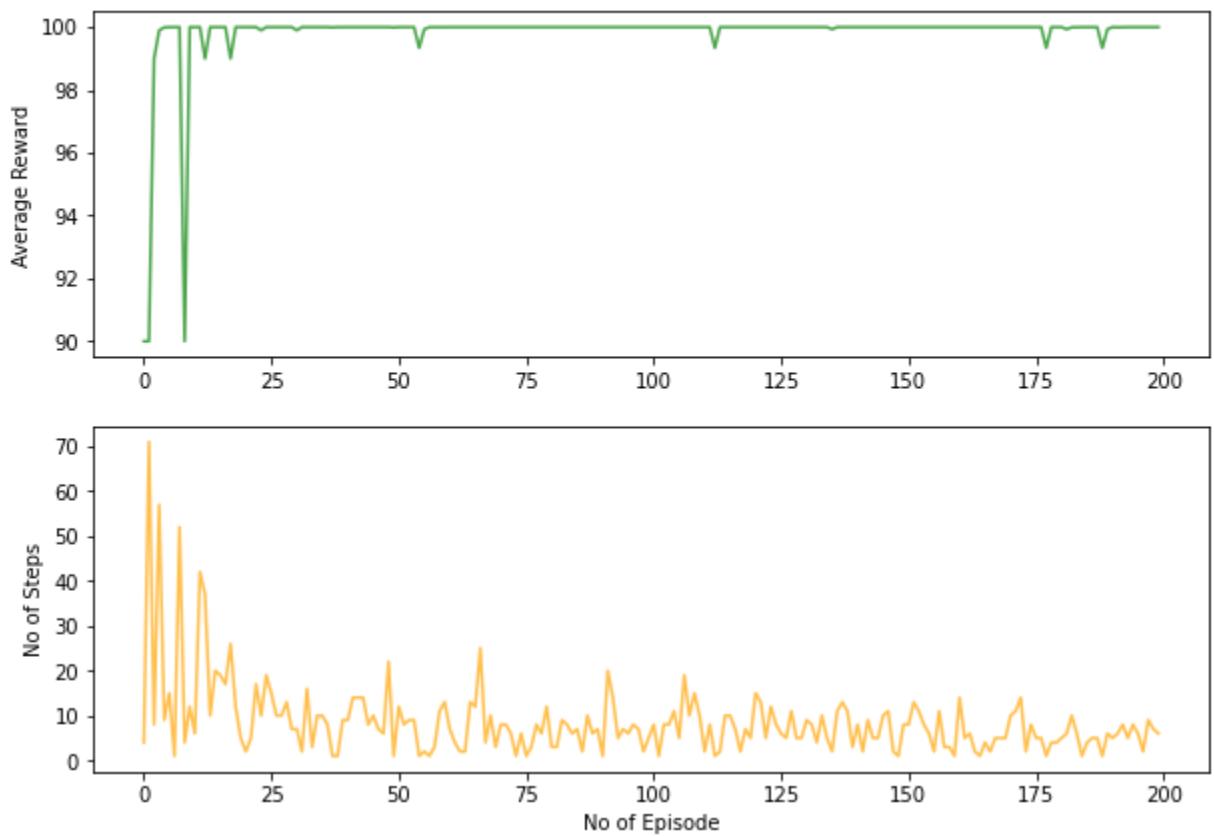
```

In [ ]:
plt.figure(figsize=(10,7))
plt.suptitle("Action Selection with Best Hyper-Parameters")
plt.subplot(2, 1, 1)
plt.plot(episodeList, avg_reward_per_episode, color='green', alpha = 0.7)
plt.ylabel('Average Reward')

plt.subplot(2, 1, 2)
plt.plot(episodeList, stepList, color='orange', alpha = 0.7)
plt.xlabel('No of Episode')
plt.ylabel('No of Steps')
plt.show()

```

Action Selection with Best Hyper-Parameters



Testing - Shortest Path

Where is my Cheese?

Testing the trained agent

```
In [ ]: def get_next_action(available_actions, c_row, c_col, epsilon):
    ...
        best action is selected from the list of available actions if factor (generated
        else a random action is selected

    Parameters :
        available actions
    Returns :
        random next action
    ...
    #Choose a best action

    temp = {}
    for i in available_actions:
        temp[i] = Q[c_row, c_col, i]
    next_action = max(temp, key=temp.get)
    return next_action


def get_shortest_path(start_row, start_column):
    shortest_path = []
    shortest_path.append([start_row, start_column])
    if R[start_row, start_column] == R[cheese]:
        return []
    else:
        current_row, current_column = start_row, start_column
        while R[current_row, current_column] != R[cheese]:
            available_actions = get_available_actions(current_row, current_column)

            next_action = get_next_action(available_actions, current_row, current_column,
            current_row, current_column = next_location(current_row, current_column, next_
            shortest_path.append([current_row, current_column]))

    return shortest_path
```

```
In [ ]: get_shortest_path(3,1)
```

```
Out[ ]: [[3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5], [4, 5]]
```

```
In [ ]: get_shortest_path(1,1)
```

```
Out[ ]: [[1, 1], [2, 1], [3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5]]
```

```
In [ ]: get_shortest_path(0,4)
```

```
Out[ ]: [[0, 4], [1, 4], [2, 4], [2, 5], [3, 5], [4, 5]]
```

```
In [ ]: get_shortest_path(3,1)
```

```
Out[ ]: [[3, 1], [4, 1], [4, 2], [4, 3], [4, 4], [4, 5]]
```

R and Q matrix

```
In [ ]: R
```

```
Out[ ]: array([[-50., -1., -50., -1., -1., -1.],
   [-1., -1., -1., -1., -1., -50.],
   [-1., -1., nan, nan, -1., -1.],
   [-1., -1., nan, -1., -1., -1.],
   [-1., -1., -1., -1., -1., 100.],
   [-50., -1., -1., -50., -1., -1.]])
```

In []: Q

```
Out[ ]: array([[[ 0.          , 12.38526972, 22.17411674, 0.          ],
   [ 22.13887531, 42.57499833, 2.22900245, 5.12877177],
   [ 0.          , -0.99999 , 43.35152693, 20.25570685],
   [ 39.46581263, 54.86588885, 47.79849068, 36.07431401],
   [ 39.70793465, 62.14110127, 42.23242548, 52.25298571],
   [ 40.08903808, 30.78047735, 40.29370947, 54.89301323]],

   [[ 6.42423972, 39.69597035, 7.67124648, 22.26929921],
   [ 37.51270271, 48.45815925, 47.67626199, -0.999      ],
   [ 33.14690603, 28.81568355, 54.9178216 , 38.65704699],
   [ 45.78587455, 32.94675825, 61.88273279, 30.58396267],
   [ 54.93903318, 70.04912512, 6.35727113, 54.41030834],
   [ 47.79825706, -0.99       , 0.          , 62.16482861]],

   [[ 40.53482775, 48.17227552, 43.45770722, 37.34846313],
   [ 42.95248265, 54.9539      , 40.69591736, 42.0980405 ],
   [ 0.          , 0.          , 0.          , 0.          ],
   [ 0.          , 0.          , 0.          , 0.          ],
   [ 62.64794016, 78.56398167, 79.07397702, 42.11399711],
   [ 5.35941616, 88.99834152, 38.22816 , 78.1506732 ]],

   [[ 45.80999945, 54.56764829, 49.3992724 , 47.12397333],
   [ 52.1243291 , 62.12421783, 51.43301543, 53.80129178],
   [ 0.          , 0.          , 0.          , 0.          ],
   [ 67.93578741, 73.74897476, 78.51677248, 58.957872 ],
   [ 77.35323566, 88.40544164, 88.94006533, 70.72459573],
   [ 79.31430034, 99.9999934 , 53.346      , 79.09831181]],

   [[ 47.98980577, -0.54103095, 62.12765546, 32.95059883],
   [ 54.9539      , 59.44805802, 70.19       , 54.9433548 ],
   [ 42.114      , 61.42964499, 79.1        , 62.17100048],
   [ 69.36276135, 21.19       , 89.          , 70.19       ],
   [ 85.03999981, 79.10008316, 100.         , 79.694      ],
   [ 0.          , 0.          , 0.          , 0.          ]],

   [[ 50.09216183, 0.          , 54.95386836, 0.          ],
   [ 62.17099571, 46.01185975, 61.74974798, 4.66489192],
   [ 70.13727827, 37.01790266, 21.42768213, 59.28317832],
   [ 79.1        , 0.          , 77.41634334, -0.999      ],
   [ 89.          , 66.444      , 82.34267676, 75.61217081],
   [ 99.9999999 , 0.          , 74.73786 , 88.18702482]]])
```

In []:

```
In [ ]: from google.colab import drive
drive.mount('/content/drive')
```

Mounted at /content/drive

```
In [ ]: import os
GOOGLE_DRIVE_PATH_AFTER_MYDRIVE = 'ColabNotebooks/DRL/CourseWork'
GOOGLE_DRIVE_PATH = os.path.join('drive', 'My Drive', GOOGLE_DRIVE_PATH_AFTER_MYDRIVE)
print(os.listdir(GOOGLE_DRIVE_PATH))
```

```
['CheeseProblem - Q learning.ipynb', 'Untitled2.ipynb', 'pong', 'Copy of simple_DQN.ipynb', 'Untitled folder', 'DQN_SpaceInvader.ipynb', 'Copy of DQN_SpaceInvader.ipynb', 'Trial-1 Pong_DQN_Rllib.ipynb', 'Q_Learning CheeseMouse Problem.ipynb', 'Pong_PP.ipynb', 'Pong_DQN_Rllib.ipynb']
```

Required Installations for the Lunar Lander problem

```
In [ ]: import urllib.request
urllib.request.urlretrieve('http://www.atarimania.com/roms/Roms.rar', 'Roms.rar')
!pip install unrar
!unrar x Roms.rar
!mkdir rars
!mv HC\ ROMS.zip rars
!mv ROMS.zip rars
!python -m atari_py.import_roms rars
!apt-get install -y xvfb x11-utils
!pip install pyvirtualdisplay
!pip install "ray[rllib]" tensorflow torch

!pip install "gym[atari]" "gym[accept-rom-license]" atari_py
!pip install tensorboard

!pip3 install box2d-py
!pip3 install gym[Box_2D]
!python -m atari_py.import_roms ROMS
```

Streaming output truncated to the last 5000 lines.

```
Extracting ROMS/Chopper Command (Hack) (Unknown) (PAL).bin
 6%      OK
Extracting ROMS/Chopper Command (Unknown) (PAL).bin
 6%      OK
Extracting ROMS/Chopper Command - Captain Helicopter (1982) (Activision, Bob Whitehead - Ariola) (EAX-015, EAX-015-04I - 711 015-725) (PAL).bin          6%      OK
Extracting ROMS/Chuck Norris Superkicks (1983) (Xonox - K-Tel Software - VSS, Robert Weatherby) (6230, 06002, 06003, 99003) ~.bin          6%      OK
Extracting ROMS/Circus (AKA Circus Atari) (Paddle) (Zellers).bin
 6%      OK
Extracting ROMS/Circus Atari (Paddle) (1980) (Atari, Mike Lorenzen) (CX2630, CX2630 P) (PAL).bin          6%      OK
Extracting ROMS/Circus Atari (Paddle) (Hack) (32 in 1) (Bit Corporation) (R320).bin
 6%      OK
Extracting ROMS/Circus Atari (Paddle) (Unknown) (PAL).bin
 6%      OK
Extracting ROMS/Circus Atari (Paddle) (Unknown).bin
 6%      OK
Extracting ROMS/Circus Atari - Circus (Paddle) (1980) (Atari, Mike Lorenzen - Sears) (CX2630 - 49-75122) ~.bin          6%      OK
Extracting ROMS/Coco Nuts (1982) (Telesys, Jim Rupp, Jack Woodman) (1001) ~.bin
 6%      OK
Extracting ROMS/Codebreaker (Numbers) (Keyboard Controller) (1978) (Atari) (CX2643)
```

(PAL).bin 6% OK
Extracting ROMS/Codebreaker - Code Breaker (Numbers) (Keyboard Controller) (1978)
(Atari - Sears) (CX2643 - 6-99815) ~.bin 6% OK
Extracting ROMS/Color Bar Generator (1984) (Video Soft, Jerry Lawson, Dan McElroy)
(VS1008) ~.bin 6% OK
Extracting ROMS/Colors (1980) (Atari) (Prototype) (PAL) ~.bin
6% OK
Extracting ROMS/Comando Suicida (AKA Chopper Command) (Dismac).bin
6% OK
Extracting ROMS/Combat (32 in 1) (1988) (Atari, Joe Decuir, Larry Kaplan, Steve Mayer,
Larry Wagner) (CX26163P) (PAL).bin 6% OK
Extracting ROMS/Combat (Tank) (1977) (Atari, Joe Decuir, Larry Kaplan, Steve Mayer,
Larry Wagner) (CX2601, CX2601P) (PAL).bin 6% OK
Extracting ROMS/Combat - Tank-Plus (Tank) (1977) (Atari, Joe Decuir, Larry Kaplan,
Steve Mayer, Larry Wagner - Sears) (CX2601 - 99801, 6-99801, 49-75101, 49-75124) ~.
.bin 6% OK
Extracting ROMS/Combat Two (Super Combat) (1982) (Atari - GCC) (CX2663) (Prototype)
~.bin 6% OK
Extracting ROMS/Commando (1984) (AKA Front Line) (Edu Games - Edu Juegos) (PAL).bin
6% OK
Extracting ROMS/Commando (1988) (Activision - Imagineering, Mike Reidel) (AK-043-0
4) [different logo] ~.bin 6% OK
Extracting ROMS/Commando (1988) (Activision - Imagineering, Mike Reidel) (AK-043-0
4) ~.bin 7% OK
Extracting ROMS/Commando (1988) (Activision - Imagineering, Mike Reidel) (EAK-043-0
4I) (PAL).bin 7% OK
Extracting ROMS/Commando Raid (1982) (U.S. Games Corporation - JWDA, Todd Marshall,
Wes Trager, Henry Will IV) (VC1004) ~.bin 7% OK
Extracting ROMS/Commando Raid (1983) (Carrere Video - JWDA, Todd Marshall, Wes Trag
er, Henry Will IV - Teldec - Prism) (USC1004) (PAL).bin 7% OK
Extracting ROMS/Commando Raid (Unknown) (PAL) [a].bin
7% OK
Extracting ROMS/Commando Raid (Unknown) (PAL).bin
7% OK
Extracting ROMS/Communist Mutants from Space (Galactic Egg) (1982) (Arcadia Corpora
tion, Stephen H. Landrum) (2) (AR-4101) ~.bin 7% OK
Extracting ROMS/Communist Mutants from Space (Galactic Egg) (1982) (Starpath Corpora
tion, Stephen H. Landrum) (2) (AR-4101) (PAL).bin 7% OK
Extracting ROMS/Communist Mutants from Space (Galactic Egg) (Preview) (1982) (Arcad
ia Corporation, Stephen H. Landrum) (2) (AR-4101).bin 7% OK
Extracting ROMS/Communist Mutants from Space (Galactic Egg) (Preview) (1982) (Starp
ath Corporation, Stephen H. Landrum) (2) (AR-4101) (PAL).bin 7% OK
Extracting ROMS/CompuMate (1983) (Spectravideo - Universum) (SV-010) (PAL).bin
7% OK
Extracting ROMS/CompuMate (1983) (Spectravideo) (SV-010) ~.bin
7% OK
Extracting ROMS/Computer Chess (07-07-1978) (Atari, Larry Wagner, Bob Whitehead) (P
rototype).bin 7% OK
Extracting ROMS/Condor Attack (1982) (Ultravision) (1043) (PAL).bin
7% OK
Extracting ROMS/Condor Attack (1982) (Ultravision) (1043) ~.bin
7% OK
Extracting ROMS/Condor Attack (1983) (Goliath) (4) (PAL).bin
7% OK
Extracting ROMS/Condor Attack (Unknown) (PAL).bin
7% OK
Extracting ROMS/Confrontation (1983) (Answer Software Corporation - TY Associates,
Kim Ellis) (ASC2001) (Prototype) ~.bin 7% OK
Extracting ROMS/Congo Bongo (1983) (SEGA - Beck-Tech, Steve Beck, Phat Ho - Teldec)
(006-01 - 3.60105 VG) (PAL).bin 7% OK
Extracting ROMS/Congo Bongo (1983) (SEGA - Beck-Tech, Steve Beck, Phat Ho) (006-01)
[a].bin 7% OK
Extracting ROMS/Congo Bongo (1983) (SEGA - Beck-Tech, Steve Beck, Phat Ho) (006-01)
~.bin 7% OK

Extracting ROMS/Cookie Monster Munch (Cookie Monster's Maze, Cookie Monster's Garden) (Kid's Controller) (1983) (Atari - CCW, Gary Stark) (CX26102) (PAL).bin
7% OK
Extracting ROMS/Cookie Monster Munch (Cookie Monster's Maze, Cookie Monster's Garden) (Kid's Controller) (1983) (Atari - CCW, Gary Stark) (CX26102) ~.bin
7% OK
Extracting ROMS/Corrida da Matemática (AKA Math Gran Prix) (CCE).bin
7% OK
Extracting ROMS/Cosmic Ark (1983) (CCE) (C-831) [a].bin
7% OK
Extracting ROMS/Cosmic Ark (1983) (CCE) (C-831).bin
7% OK
Extracting ROMS/Cosmic Ark (Canal 3 - Intellivision).bin
7% OK
Extracting ROMS/Cosmic Ark (Dactari - Milmar).bin
7% OK
Extracting ROMS/Cosmic Ark (Fotomania).bin
7% OK
Extracting ROMS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-1A, 720104-1B, IA3204) [selectable starfield] ~.bin 7% OK
Extracting ROMS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-1A, 720104-1B, IA3204) ~.bin 7% OK
Extracting ROMS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-2A, IA3204 P, EIX-008-04I) (PAL) [selectable starfield].bin 7% OK
Extracting ROMS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-2A, IA3204 P, EIX-008-04I) (PAL).bin 7% OK
Extracting ROMS/Cosmic Ark (Unknown) (PAL).bin
7% OK
Extracting ROMS/Cosmic Avenger (AKA StarMaster) (4 Game in One) (1983) (Bit Corporation) (PGP214) (PAL).bin 7% OK
Extracting ROMS/Cosmic Commuter (1984) (Activision, John Van Ryzin) (AG-038-04) ~.bin
7% OK
Extracting ROMS/Cosmic Commuter (CCE).bin
7% OK
Extracting ROMS/Cosmic Corridor (AKA Space Tunnel) (1983) (ZiMAG - Emag - Vidco) (708-111 - GN-040).bin 7% OK
Extracting ROMS/Cosmic Creeps (Space Maze, Spaze Maze) (1982) (Telesys, Don 'Donyo' Ruffcorn) (1002) (PAL).bin 7% OK
Extracting ROMS/Cosmic Creeps (Space Maze, Spaze Maze) (1982) (Telesys, Don 'Donyo' Ruffcorn) (1002) ~.bin 7% OK
Extracting ROMS/Cosmic Creeps (Unknown) (PAL).bin
7% OK
Extracting ROMS/Cosmic Swarm (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 7% OK
Extracting ROMS/Cosmic Swarm (Termite) (1982) (CommaVid, John Bronstein) (CM-003) (Prototype).bin 7% OK
Extracting ROMS/Cosmic Swarm (Termite) (1982) (CommaVid, John Bronstein) (CM-003) ~.bin 7% OK
Extracting ROMS/Cosmic Swarm (Unknown).bin
7% OK
Extracting ROMS/Cosmic Swarm - Angriff der Termiten (Termite) (1982) (CommaVid, John Bronstein - Ariola) (CM-003 - 712 003-720) (PAL).bin 7% OK
Extracting ROMS/Cosmic Town (AKA Base Attack) (Perry Rhodan-Serie) (1983) (ITT Family Games) (554-33 375) (PAL).bin 7% OK
Extracting ROMS/Cosmic War (AKA Space Tunnel) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83136) (PAL).bin 7% OK
Extracting ROMS/Crack'ed (11-28-1988) (Atari - Zip Technology, Randy Bowker, Bruce Williams) (CX26142) (Prototype) ~.bin 7% OK
Extracting ROMS/Crackpots (1983) (CCE) (C-862) [a].bin
7% OK
Extracting ROMS/Crackpots (1983) (CCE) (C-862).bin
7% OK
Extracting ROMS/Crackpots (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 7% OK

```
Extracting ROMS/Crackpots (Digivision).bin
 8%      OK
Extracting ROMS/Crackpots (Flower Power) (1983) (Activision, Dan Kitchen) (AX-029)
 ~.bin      8%      OK
Extracting ROMS/Crackpots (Fotomania).bin
 8%      OK
Extracting ROMS/Crackpots (Unknown) (PAL).bin
 8%      OK
Extracting ROMS/Crash Dive (Voyage to the Bottom of the Sea) (1983) (20th Century Fox Video Games, Bill Aspromonte) (11031) ~.bin      8%      OK
Extracting ROMS/Crash Dive (Voyage to the Bottom of the Sea) (1983) (20th Century Fox Video Games, Bill Aspromonte) (11131) (PAL).bin      8%      OK
Extracting ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) (Prototype) [a1].bin      8%      OK
Extracting ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) (Prototype) [a2].bin      8%      OK
Extracting ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) (Prototype) [a3].bin      8%      OK
Extracting ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) (Prototype).bin      8%      OK
Extracting ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) ~.bin      8%      OK
Extracting ROMS/Crazy Ski (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin      8%      OK
Extracting ROMS/Criminal Pursuit (AKA A Mysterious Thief) (1983) (Suntek) (SS-036) (PAL).bin      8%      OK
Extracting ROMS/Criminal Pursuit (AKA A Mysterious Thief) (Video Game Cartridge - Ariola) (TP-619) (PAL).bin      8%      OK
Extracting ROMS/Cross Force (Cross Fire) (1982) (Spectravision - Spectravideo) (SA-203) ~.bin      8%      OK
Extracting ROMS/Cross Force (Unknown) (PAL).bin
 8%      OK
Extracting ROMS/Cross Force - Kreuzfeuer (Cross Fire) (1982) (Spectravision - Spectravideo - Quelle) (SA-203 - 413.223 9) (PAL).bin      8%      OK
Extracting ROMS/Crossbow (1988) (Atari - Imagineering, Dan Kitchen) (CX26139) ~.bin
 8%      OK
Extracting ROMS/Crossbow (1988) (Atari - Imagineering, Dan Kitchen) (CX26139P) (PAL).bin      8%      OK
Extracting ROMS/Cruise Missile (AKA Exocet) (1987) (Froggo) (FG1007).bin
 8%      OK
Extracting ROMS/Crypts of Chaos (1983) (20th Century Fox Video Games, John W.S. Marvin) (11009) ~.bin      8%      OK
Extracting ROMS/Crystal Castles (01-04-1984) (Atari, Michael Kosaka, Peter C. Niday, Robert Vieira) (CX26110) (Prototype).bin      8%      OK
Extracting ROMS/Crystal Castles (1984) (Atari, Michael Kosaka, Peter C. Niday, Robert Vieira) (CX26110) (PAL).bin      8%      OK
Extracting ROMS/Crystal Castles (1984) (Atari, Michael Kosaka, Peter C. Niday, Robert Vieira) (CX26110) ~.bin      8%      OK
Extracting ROMS/Cubicolor (1982) (Imagic, Rob Fulop) (Prototype) ~.bin
 8%      OK
Extracting ROMS/Cubo Mágico (AKA Cubicolor) (CCE).bin
 8%      OK
Extracting ROMS/Curtiss (AKA Atlantis) (1983) (Rainbow Vision - Suntek) (SS-019) (PAL).bin      8%      OK
Extracting ROMS/Custer's Revenge (1982) (Mystique - American Multiple Industries, Joel H. Martin) (1001) ~.bin      8%      OK
Extracting ROMS/Custer's Revenge (1982) (Mystique - American Multiple Industries, Joel H. Martin) (PAL).bin      8%      OK
Extracting ROMS/Dancing Plate (1982) (Bit Corporation) (PG205).bin
 8%      OK
Extracting ROMS/Dancing Plate (1982) (Puzzy - Bit Corporation) (PG205) (PAL).bin
 8%      OK
Extracting ROMS/Dancing Plate (Unknown) (PAL).bin
 8%      OK
```

Extracting ROMS/Dancing Plate - Dancing Plates - Tanzende Teller (1982) (Bit Corporation) (PG205) (PAL) ~.bin 8% OK
Extracting ROMS/Dark Cavern (1982) (M Network - APH Technological Consulting, Hal Finney) (MT5667) ~.bin 8% OK
Extracting ROMS/Dark Chambers (Dungeon, Dungeon Masters) (1988) (Atari - Sculptured Software, Adam Clayton) (CX26151, CX26151P) (Prototype) (PAL).bin 8% OK
Extracting ROMS/Dark Chambers (Dungeon, Dungeon Masters) (1989) (Atari - Sculptured Software, Adam Clayton) (CX26151) ~.bin 8% OK
Extracting ROMS/Dark Chambers (Dungeon, Dungeon Masters) (1989) (Atari - Sculptured Software, Adam Clayton) (CX26151, CX26151P) (PAL).bin 8% OK
Extracting ROMS/Das Raumschiff (AKA Go Go Home) (1983) (Video Game - Ariola) (SP-211) (PAL).bin 8% OK
Extracting ROMS/Deadly Discs (AKA TRON - Deadly Discs) (1988) (Telegames) (PAL).bin 8% OK
Extracting ROMS/Deadly Duck (1982) (20th Century Fox Video Games - Sirius Software, Ed Hodapp) (11004) ~.bin 8% OK
Extracting ROMS/Death Trap (1983) (Avalon Hill, Jean Baer, Jim Jacob) (5001002) ~.bin 8% OK
Extracting ROMS/Decathlon (AKA The Activision Decathlon) (HES - Activision) (PAL) (16K).bin 8% OK
Extracting ROMS/Defender (10-30-1981) (Atari, Robert C. Polaro, Alan J. Murphy - Sears) (CX2609 - 49-75186) (Prototype).bin 9% OK
Extracting ROMS/Defender (11-XX-1981) (Atari, Robert C. Polaro, Alan J. Murphy - Sears) (CX2609 - 49-75186) (Prototype).bin 9% OK
Extracting ROMS/Defender (1982) (Atari, Robert C. Polaro, Alan J. Murphy - Sears) (CX2609 - 49-75186) ~.bin 9% OK
Extracting ROMS/Defender (1982) (Atari, Robert C. Polaro, Alan J. Murphy) (CX2609, CX2609P) (PAL).bin 9% OK
Extracting ROMS/Defender (CCE).bin 9% OK
Extracting ROMS/Defender (Dactari - Milmar).bin 9% OK
Extracting ROMS/Defender (Digivision).bin 9% OK
Extracting ROMS/Defender (Hack) (32 in 1) (Bit Corporation) (R320).bin 9% OK
Extracting ROMS/Defender (Hack) (Unknown).bin 9% OK
Extracting ROMS/Defender (Unknown) (PAL).bin 9% OK
Extracting ROMS/Defender II (AKA Stargate) (1987) (Atari, Bill Aspromonte, Andrew Fuchs) (CX26120) (PAL).bin 9% OK
Extracting ROMS/Defender II (AKA Stargate) (1987) (Atari, Bill Aspromonte, Andrew Fuchs) (CX26120).bin 9% OK
Extracting ROMS/Demolition Herby (1983) (Telesys, Don Ruffcorn) (1006) (PAL).bin 9% OK
Extracting ROMS/Demolition Herby (1983) (Telesys, Don Ruffcorn) (1006) ~.bin 9% OK
Extracting ROMS/Demolition Herby (Unknown) (PAL).bin 9% OK
Extracting ROMS/Demon Attack (1983) (CCE) (C-823).bin 9% OK
Extracting ROMS/Demon Attack (Canal 3 - Intellivision) (C 3016).bin 9% OK
Extracting ROMS/Demon Attack (Death from Above) (1982) (Imagic, Rob Fulop) (720000-200, 720101-1B, 720101-1C, IA3200, IA3200C, IX-006-04) [fixed] ~.bin 9% OK
Extracting ROMS/Demon Attack (Death from Above) (1982) (Imagic, Rob Fulop) (720000-200, 720101-1B, 720101-1C, IA3200, IA3200C, IX-006-04) ~.bin 9% OK
Extracting ROMS/Demon Attack (Death from Above) (1982) (Imagic, Rob Fulop) (720101-2B, IA3200P, EIX-006-04I) (PAL).bin 9% OK
Extracting ROMS/Demon Attack (Fotomania).bin 9% OK

Extracting ROMS/Demon Attack (Hack) (32 in 1) (Bit Corporation) (R320).bin
9% OK
Extracting ROMS/Demon Attack (Robby).bin
9% OK
Extracting ROMS/Demon Attack (Supergame).bin
9% OK
Extracting ROMS/Demon Attack (Unknown) (PAL).bin
9% OK
Extracting ROMS/Demons to Diamonds (Hot Rox) (Paddle) (1982) (Atari, Alan J. Murphy, Nick 'Sandy Maiwald' Turner - Sears) (CX2615 - 49-75140) ~.bin 9%
OK
Extracting ROMS/Demons to Diamonds (Hot Rox) (Paddle) (1982) (Atari, Alan J. Murphy, Nick 'Sandy Maiwald' Turner) (CX2615) (PAL).bin 9% OK
Extracting ROMS/Demons to Diamonds (Paddle) (CCE).bin
9% OK
Extracting ROMS/Depth Charge (1983) (Amiga - Video Soft) (Prototype) ~.bin
9% OK
Extracting ROMS/Der flinke Architekt (AKA Master Builder) (1983) (Quelle) (343.373 7) (PAL).bin 9% OK
Extracting ROMS/Der Geheimkurier (AKA Mr. Postman) (1983) (Quelle) (802.744 3) (PAL).bin 9% OK
Extracting ROMS/Der hungrige Panda - Panda (Quest) (AKA Panda Chase) (1983) (Quelle - Otto Versand) (731.662 3 - 550425) (PAL).bin 9% OK
Extracting ROMS/Der kleine Baer (AKA Frostbite) (1983) (Quelle) (685.640 5) (PAL).bin 9% OK
Extracting ROMS/Der moderne Ritter - Mr. T (AKA Fast Eddie) (1983) (Quelle - Otto Versand) (700.223 1 - 781627) (PAL).bin 9% OK
Extracting ROMS/Der Vielfrass (AKA Fast Food) (1983) (Quelle) (176.543 7) (PAL).bin 9% OK
Extracting ROMS/Desert Falcon (Nile Flyer, Sphinx) (05-27-1987) (Atari - Bobco, Robert C. Polaro) (CX26140, CX26140P) (Prototype) (PAL).bin 9% OK
Extracting ROMS/Desert Falcon (Nile Flyer, Sphinx) (1987) (Atari - Bobco, Robert C. Polaro) (CX26140) ~.bin 9% OK
Extracting ROMS/Desert Falcon (Nile Flyer, Sphinx) (1987) (Atari - Bobco, Robert C. Polaro) (CX26140, CX26140P) (PAL).bin 9% OK
Extracting ROMS/Diagnostic Test Cartridge 2.0 (1980) (Atari) (50008) (Prototype) ~.bin 9% OK
Extracting ROMS/Diagnostic Test Cartridge 2.6 (1982) (Atari) (MA017600) ~.bin
9% OK
Extracting ROMS/Diagnostic Test Cartridge 2.6P (1982) (Atari) (TE016643) (PAL) (4K).bin 9% OK
Extracting ROMS/Diagnostic Test Cartridge 4.2 (06-01-1982) (Atari) ~.bin
9% OK
Extracting ROMS/Dice Puzzle (1983) (Panda) (106).bin
9% OK
Extracting ROMS/Dice Puzzle (1983) (Sancho - Tang's Electronic Co.) (TEC005) (PAL) ~.bin 9% OK
Extracting ROMS/Die Ente und der Wolf (AKA Pooyan) (1983) (Quelle) (688.383 9) (PAL).bin 9% OK
Extracting ROMS/Die hungrigen Froesche (AKA Frogs and Flies) (1983) (Quelle) (043.151 0, 874.382 5) (PAL).bin 9% OK
Extracting ROMS/Die Ratte und die Karotten (AKA Gopher) (1983) (Quelle) (687.463 0) (PAL).bin 9% OK
Extracting ROMS/Die Springteufel (AKA Infiltrate) (1983) (Quelle) (176.654 2) (PAL).bin 9% OK
Extracting ROMS/Die Unterwasser Bestien - Mariana (AKA Seaquest) (1983) (Quelle - Otto Versand) (463.734 4 - 550293) (PAL).bin 9% OK
Extracting ROMS/Dig Dug (1983) (Atari - GCC, Ava-Robin Cohen, Douglas B. Macrae) (CX2677) ~.bin 9% OK
Extracting ROMS/Dig Dug (1983) (Atari - GCC, Ava-Robin Cohen, Douglas B. Macrae) (CX2677, CX2677P) (PAL).bin 9% OK
Extracting ROMS/Dishaster (AKA Dancing Plate) (1983) (ZiMAG - Emag - Vidco) (711-111 - GN-020).bin 9% OK
Extracting ROMS/Dodge 'Em (Head On) (1980) (Atari, Carla Meninsky) (CX2637, CX2637

```

P) (PAL) [fixed].bin          9%      OK
Extracting ROMS/Dodge 'Em (Head On) (1980) (Atari, Carla Meninsky) (CX2637, CX2637
P) (PAL).bin          9%      OK
Extracting ROMS/Dodge 'Em (Unknown) (PAL).bin
  9%      OK
Extracting ROMS/Dodge 'Em - Dodger Cars (Head On) (1980) (Atari, Carla Meninsky - S
ears) (CX2637 - 49-75158) [fixed] ~.bin        10%      OK
Extracting ROMS/Dodge 'Em - Dodger Cars (Head On) (1980) (Atari, Carla Meninsky - S
ears) (CX2637 - 49-75158) ~.bin        10%      OK
Extracting ROMS/Dolphin (1983) (Activision, Matthew L. Hubbard, Bob Whitehead) (AX-
024) ~.bin        10%      OK
Extracting ROMS/Dolphin (CCE).bin           1
  0%      OK
Extracting ROMS/Donald Duck's Speedboat (Donald Duck's Sailboat Regatta) (04-12-198
3) (Atari, Dave Joly, Suki Lee) (CX26108) (Prototype) ~.bin        10%      OK
Extracting ROMS/Donald Duck's Speedboat (Donald Duck's Sailboat Regatta) (04-18-198
3) (Atari, Dave Joly, Suki Lee) (CX26108) (Prototype) (PAL).bin        10%      0
K
Extracting ROMS/Donkey Kong (1982) (Coleco - Woodside Design Associates - Imaginati
ve Systems Software, Garry Kitchen) (2451) ~.bin        10%      OK
Extracting ROMS/Donkey Kong (1983) (CBS Electronics - Woodside Design Associates -
Imaginative Systems Software, Garry Kitchen) (4L1700, 4L1701, 4L1702, 4L1802, 4L227
4) (PAL).bin        10%      OK
Extracting ROMS/Donkey Kong (1987) (Atari) (CX26143).bin           1
  0%      OK
Extracting ROMS/Donkey Kong (Hack) (32 in 1) (Bit Corporation) (R320).bin
  10%      OK
Extracting ROMS/Donkey Kong (Hack) (Unknown).bin           1
  0%      OK
Extracting ROMS/Donkey Kong (Unknown) (PAL).bin           1
  0%      OK
Extracting ROMS/Donkey Kong Jr (AKA Donkey Kong Junior) (1983) (CCE) (C-1003).bin
  10%      OK
Extracting ROMS/Donkey Kong Jr. (AKA Donkey Kong Junior) (Tron).bin           1
  0%      OK
Extracting ROMS/Donkey Kong Junior (1983) (CBS Electronics - Woodside Design Associ
ates, Harley H. Puthuff Jr.) (4L1802) (PAL).bin        10%      OK
Extracting ROMS/Donkey Kong Junior (1983) (Coleco - Woodside Design Associates, Har
ley H. Puthuff Jr.) (2653) ~.bin        10%      OK
Extracting ROMS/Donkey Kong Junior (1987) (Atari) (CX26144).bin           1
  0%      OK
Extracting ROMS/Double Dragon (1989) (Activision - Imagineering, Donald Hahn, Dan K
itchen) (AK-050-04) ~.bin        10%      OK
Extracting ROMS/Double Dragon (1989) (Activision - Imagineering, Donald Hahn, Dan K
itchen) (EAK-050-04) (PAL).bin        10%      OK
Extracting ROMS/Double Dragon (CCE) (PAL).bin           1
  0%      OK
Extracting ROMS/Double Dunk (Super Basketball) (1989) (Atari, Matthew L. Hubbard)
(CX26159) (PAL).bin        10%      OK
Extracting ROMS/Double Dunk (Super Basketball) (1989) (Atari, Matthew L. Hubbard)
(CX26159) ~.bin        10%      OK
Extracting ROMS/Dragon Defender (AKA Dragon Power) (1983) (Suntek) (SS-021) (PAL).b
in        10%      OK
Extracting ROMS/Dragon Defender (AKA Dragon Power) (Video Game Cartridge - Ariola)
(TP-605) (PAL).bin        10%      OK
Extracting ROMS/Dragon Treasure (AKA Dragonfire) (Zellers).bin           1
  0%      OK
Extracting ROMS/Dragonfire (Cheese) (1982) (Imagic, Bob Smith) (720020-1A, IA3611,
IA3611C) ~.bin        10%      OK
Extracting ROMS/Dragonfire (Cheese) (1982) (Imagic, Bob Smith) (720020-2A, IA3611P)
(PAL).bin        10%      OK
Extracting ROMS/Dragonfire (Unknown) (PAL).bin           1
  0%      OK
Extracting ROMS/Dragonstomper (Excalibur) (1 of 3) (1982) (Starpath Corporation, St

```

ephene H. Landrum) (6) (AR-4400) (PAL).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (1 of 3) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) (PAL).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) ~.bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (2 of 3) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) (PAL).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (2 of 3) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (3 of 3) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) (PAL).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (3 of 3) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (Preview) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) (PAL).bin 10% OK
 Extracting ROMS/Dragonstomper (Excalibur) (Preview) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400).bin 10% OK
 Extracting ROMS/Dragster (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co.).bin 10% OK
 Extracting ROMS/Dragster (Drag Strip) (1980) (Activision, David Crane) (AG-001) ~.bin 10% OK
 Extracting ROMS/Dragster - Dragster Rennen (Drag Strip) (1980) (Activision, David Crane - Ariola) (EAG-001, PAG-001, EAG-001-04B, EAG-001-04I - 711 001-715) (PAL).bin 10% OK
 Extracting ROMS/Dream Flight (AKA Nightmare) (1983) (Goliath - Hot Shot) (83-215) (PAL).bin 10% OK
 Extracting ROMS/Dschungel Boy (AKA Pitfall!) (1983) (Quelle) (262.894 9) (PAL).bin 11% OK
 Extracting ROMS/Dukes of Hazzard (1983) (Atari, Mark R. Hahn) (CX2678) ~.bin 11% OK
 Extracting ROMS/Dukes of Hazzard (AKA Stunt Cycle) (Paddle) (1980) (Atari, Robert C. Polaro) (Prototype).bin 11% OK
 Extracting ROMS/Dumbo's Flying Circus (Dumbo Flies Home) (04-04-1983) (Atari, Jerome Domurat, Peter C. Niday) (CX26115) (Prototype).bin 11% OK
 Extracting ROMS/Dumbo's Flying Circus (Dumbo Flies Home) (05-05-1983) (Atari, Jerome Domurat, Peter C. Niday) (CX26115) (Prototype) ~.bin 11% OK
 Extracting ROMS/Dumbo's Flying Circus (Dumbo Flies Home) (07-11-1983) (Atari, Jerome Domurat, Peter C. Niday) (CX26115) (Prototype) (PAL).bin 11% OK
 Extracting ROMS/Dumbo's Flying Circus (Dumbo Flies Home) (1983) (Atari, Jerome Domurat, Peter C. Niday) (CX26115) (Prototype) (PAL).bin 11% OK
 Extracting ROMS/Dune (07-10-1984) (Atari, Bruce Poehlman, Gary Stark) (Prototype) ~.bin 11% OK
 Extracting ROMS/Dungeon (Dark Chambers Beta) (11-22-1985) (Atari - Sculptured Software, Adam Clayton) (CX26151, CX26151P) (Prototype).bin 11% OK
 Extracting ROMS/E.T. - The Extra-Terrestrial (1982) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2674) (PAL).bin 11% OK
 Extracting ROMS/E.T. - The Extra-Terrestrial (1982) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2674) ~.bin 11% OK
 Extracting ROMS/E.T. - The Extra-Terrestrial (CCE).bin 1% OK
 Extracting ROMS/Earth Attack (AKA Defender) (Zellers).bin 1% OK
 Extracting ROMS/Earth Dies Screaming, The (The Day the Earth Stood Still) (1983) (20th Century Fox Video Games - Sirius Software, Dan Thompson) (11020) ~.bin 11% OK
 Extracting ROMS/Earth Dies Screaming, The (Unknown) (PAL).bin 1% OK
 Extracting ROMS/Eddy Langfinger, der Museumsdieb (AKA A Mysterious Thief) (1983) (Quelle) (732.052 6) (PAL).bin 11% OK
 Extracting ROMS/Eggomania (Canal 3 - Intellivision).bin 1% OK
 Extracting ROMS/Eggomania (Weird Bird) (Paddle) (1982) (U.S. Games Corporation - JW

DA, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV) (VC2003) ~.bin
11% OK
Extracting ROMS/Eggomania - Eierregen (Paddle) (1983) (Carrere Video - JWDA, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV - Teldec - Prism) (USC2003) (PAL).bin 11% OK
Extracting ROMS/Eishockey-Fieber (AKA Ice Hockey) (1983) (Quelle) (873.790 0) (PAL).bin 11% OK
Extracting ROMS/Elevator Action (1983) (Atari, Dan Hitchens) (CX26126) (Prototype) ~.bin 11% OK
Extracting ROMS/Elf Adventure (04-22-83) (Atari, Warren Robinett) (Prototype).bin 11% OK
Extracting ROMS/Elf Adventure (05-02-83) (Atari, Warren Robinett) (Prototype).bin 11% OK
Extracting ROMS/Elf Adventure (05-25-83) (Atari, Warren Robinett) (Prototype) ~.bin 11% OK
Extracting ROMS/Eli's Ladder (1984) (Simage) ~.bin 1
1% OK
Extracting ROMS/Elk Attack (1987) (Atari, Mark R. Hahn) (Prototype) ~.bin 11% OK
Extracting ROMS/Encounter at L-5 (Megalon Invasion) (Paddle) (1982) (Data Age) (DA1001) ~.bin 11% OK
Extracting ROMS/Encounter at L-5 (Megalon Invasion) (Paddle) (1983) (Gameworld) (133-001) (PAL).bin 11% OK
Extracting ROMS/End of the World, The (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 11% OK
Extracting ROMS/Enduro (1983) (Activision, Larry Miller) (AX-026, AX-026-04) ~.bin 11% OK
Extracting ROMS/Enduro (1983) (CCE) (C-810).bin 1
1% OK
Extracting ROMS/Enduro (1983) (Dactari - Milmar).bin 1
1% OK
Extracting ROMS/Enduro (1983) (Digitel).bin 1
1% OK
Extracting ROMS/Enduro (1983) (Dynacom).bin 1
1% OK
Extracting ROMS/Enduro (1984) (Supergame).bin 1
1% OK
Extracting ROMS/Enduro (Canal 3 - Intellivision).bin 1
1% OK
Extracting ROMS/Enduro (Digivision).bin 1
1% OK
Extracting ROMS/Enduro (Fotomania).bin 1
1% OK
Extracting ROMS/Enduro (Robby).bin 1
1% OK
Extracting ROMS/Enduro (Tron).bin 1
1% OK
Extracting ROMS/Enduro (Unknown) (PAL).bin 1
1% OK
Extracting ROMS/Enduro (Unknown) [a].bin 1
1% OK
Extracting ROMS/Enduro (Unknown).bin 1
1% OK
Extracting ROMS/Enduro - Transamerika-Rennen (1983) (Activision, Larry Miller - Ariola) (EAX-026, EAX-026-04B, EAX-026-04I - 711 026-725) (PAL).bin 11% OK
Extracting ROMS/Entity, The (1983) (20th Century Fox Video Games, Mark Klein) (11036) (Prototype) ~.bin 11% OK
Extracting ROMS/Entombed (Maze Chase, Pharaoh's Tomb, Zombie) (1983) (U.S. Games Corporation - Western Technologies, Jeff Corsiglia, Paul Allen Newell, Steven B. Sidley, Tom Sloper) (VC2007) ~.bin 11% OK
Extracting ROMS/Escape from the Mindmaster (Labyrinth) (1 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 11% OK
Extracting ROMS/Escape from the Mindmaster (Labyrinth) (1 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 11% OK

rporation, Dennis Caswell) (5) (AR-4200).bin 11% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 11% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) ~.bin 11% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (2 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (2 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (3 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (3 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (4 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (4 of 4) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (Preview) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 12% OK
 Extracting ROMS/Escape from the Mindmaster (Labyrinth) (Preview) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200).bin 12% OK
 Extracting ROMS/Eskimo Jump (AKA Frostbite) (4 Game in One) (1983) (Bit Corporation) (CP405) (PAL).bin 12% OK
 Extracting ROMS/Espial (1984) (Tigervision - Teldec) (7-012 - 3.60016 VC) (PAL).bin 12% OK
 Extracting ROMS/Espial (1984) (Tigervision) (7-012) ~.bin 1
 2% OK
 Extracting ROMS/Euro Gen (02-01-83) (JWDA, Todd Marshall) (PAL) ~.bin 1
 2% OK
 Extracting ROMS/Excalibur (Dragonstomper Beta) (1982) (Arcadia Corporation, Stephen H. Landrum) (6) (AR-4400) (Prototype) [a].bin 12% OK
 Extracting ROMS/Excalibur (Dragonstomper Beta) (1982) (Arcadia Corporation, Stephen H. Landrum) (6) (AR-4400) (Prototype).bin 12% OK
 Extracting ROMS/Excalibur Version 36 (Dragonstomper Beta) (1982) (Arcadia Corporation, Stephen H. Landrum) (6) (AR-4400) (Prototype).bin 12% OK
 Extracting ROMS/Excalibur Version 39 (Dragonstomper Beta) (1982) (Arcadia Corporation, Stephen H. Landrum) (6) (AR-4400) (Prototype).bin 12% OK
 Extracting ROMS/Exocet (1982) (Sancho - Tang's Electronic Co.) (TEC001) (PAL) ~.bin 12% OK
 Extracting ROMS/Exocet (1983) (Panda) (109).bin 1
 2% OK
 Extracting ROMS/Exocet (Unknown) (PAL).bin 1
 2% OK
 Extracting ROMS/Exoset Missile (AKA Exocet) (1982) (John Sands Electronics) (JS145 B) (PAL).bin 12% OK
 Extracting ROMS/Extra Terrestrials (1984) (Skill Screen Games, Herman Quast) ~.bin 12% OK
 Extracting ROMS/F-14 Tomcat (1988) (Absolute Entertainment, Dan Kitchen) (PAL).bin 12% OK
 Extracting ROMS/Fantastic Voyage (11-04-1982) (20th Century Fox Video Games - Sirius Software, David Lubar) (11008) (Prototype).bin 12% OK
 Extracting ROMS/Fantastic Voyage (1982) (20th Century Fox Video Games - Sirius Software, David Lubar) (11008) ~.bin 12% OK
 Extracting ROMS/Fantastic Voyage (Unknown) (PAL).bin 1
 2% OK
 Extracting ROMS/Farmer Dan (AKA Gopher) (Zellers).bin 1
 2% OK
 Extracting ROMS/Farmyard Fun (AKA Pumuckl at the Farm House) (1983) (Suntek) (SS-034) (PAL).bin 12% OK
 Extracting ROMS/Farmyard Fun (AKA Pumuckl at the Farm House) (Video Game Cartridge - Ariola) (TP-617).bin 12% OK
 Extracting ROMS/Fast Eddie (1982) (20th Century Fox Video Games - Sirius Software, Mark Turmell) (11003) ~.bin 12% OK
 Extracting ROMS/Fast Eddie (1983) (CCE) (C-834).bin 1

```

2%      OK
Extracting ROMS/Fast Eddie (Hack) (32 in 1) (Bit Corporation) (R320).bin      1
2%      OK
Extracting ROMS/Fast Food (1982) (Telesys, Don Ruffcorn, Jack Woodman) (1003) (PA
L).bin      12%      OK
Extracting ROMS/Fast Food (1982) (Telesys, Don Ruffcorn, Jack Woodman) (1003) ~.bin
12%      OK
Extracting ROMS/Fast Food (Fotomania).bin      1
2%      OK
Extracting ROMS/Fast Food (Unknown) (PAL).bin      1
2%      OK
Extracting ROMS/Fast Food (Zirok).bin      1
2%      OK
Extracting ROMS/Fatal Run (Ultimate Driving) (1989) (Atari - Sculptured Software, S
teve Aguirre) (CX26162) (Prototype).bin      12%      OK
Extracting ROMS/Fatal Run (Ultimate Driving) (1991) (Atari - Sculptured Software, S
teve Aguirre) (CX26162) (PAL) ~.bin      12%      OK
Extracting ROMS/Fathom (Scuba) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Ro
b Fulop) (720111-1A, 03205) ~.bin      12%      OK
Extracting ROMS/Fathom (Scuba) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Ro
b Fulop) (720111-2A, 13205) (PAL).bin      12%      OK
Extracting ROMS/Fathon (AKA Fathom) (Digivision).bin      1
2%      OK
Extracting ROMS/Felix Return (AKA Bobby Is Going Home) (1983) (Goliath - Hot Shot)
(83-116) (PAL).bin      12%      OK
Extracting ROMS/Festival (AKA Carnival) (4 Game in One) (1983) (Bit Corporation) (P
GP230) (PAL).bin      12%      OK
Extracting ROMS/Feuerwehr im Einsatz (AKA Fire Fighter) (1983) (Quelle) (343.173 1)
(PAL).bin      12%      OK
Extracting ROMS/Fighter Pilot (AKA Tomcat - The F-14 Fighter Simulator) (1988) (Act
ivision, Dan Kitchen) (EAK-046-04B) (PAL).bin      12%      OK
Extracting ROMS/Final Approach (1982) (Apollo) (AP-2009) ~.bin      1
2%      OK
Extracting ROMS/Fire Bird (AKA Phoenix) (Video Game Program) (PAL).bin      1
3%      OK
Extracting ROMS/Fire Birds (AKA Sky Alien) (Perry Rhodan-Serie) (1983) (ITT Family
Games) (554-33 383) (PAL).bin      13%      OK
Extracting ROMS/Fire Fighter (Fire Fighters) (1982) (Imagic, Brad Stewart) (720105-
1A, IA3400) ~.bin      13%      OK
Extracting ROMS/Fire Fighter (Fire Fighters) (1982) (Imagic, Brad Stewart) (720105-
2A, IA3400P, EIX-005-04I) (PAL).bin      13%      OK
Extracting ROMS/Fire Fly (1983) (Mythicon, Bill Bryner, Bruce de Graaf) (MA1002) ~.
bin      13%      OK
Extracting ROMS/Fireball (Frantic) (Paddle) (1982) (Arcadia Corporation, Scott Nels
on) (3) (AR-4300) (Prototype).bin      13%      OK
Extracting ROMS/Fireball (Frantic) (Paddle) (1982) (Arcadia Corporation, Scott Nels
on) (3) (AR-4300) ~.bin      13%      OK
Extracting ROMS/Fireball (Frantic) (Paddle) (1982) (Starpath Corporation, Scott Nel
son) (3) (AR-4300) (PAL).bin      13%      OK
Extracting ROMS/Fireball (Frantic) (Preview) (1982) (Arcadia Corporation, Scott Nel
son) (3) (AR-4300).bin      13%      OK
Extracting ROMS/Fireball (Frantic) (Preview) (1982) (Starpath Corporation, Scott Ne
lson) (3) (AR-4300) (PAL).bin      13%      OK
Extracting ROMS/Firebug (AKA Spinning Fireball) (1983) (Suntek) (SS-028) (PAL).bin
13%      OK
Extracting ROMS/Firefox (Combat II, Fighter Command) (06-01-83) (Atari - Roklan, Bo
b Curtiss) (Prototype) ~.bin      13%      OK
Extracting ROMS/Firefox (Combat II, Fighter Command) (1983) (Atari - Roklan, Bob Cu
rtiss) (Prototype) [a].bin      13%      OK
Extracting ROMS/Firefox (Combat II, Fighter Command) (1983) (Atari - Roklan, Bob Cu
rtiss) (Prototype).bin      13%      OK
Extracting ROMS/Fisher Price (AKA Skindiver) (1983) (CCE) (C-863).bin      1
3%      OK
Extracting ROMS/Fishing (AKA Fishing Derby) (32 in 1) (1988) (Atari) (CX26163P) (PA

```

```

L).bin      13%      OK
Extracting ROMS/Fishing Derby (1980) (Activision, David Crane) (AG-004) ~.bin
          13%      OK
Extracting ROMS/Fishing Derby (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin
          13%      OK
Extracting ROMS/Fishing Derby (Canal 3 - Intellivision) (4K).bin      1
          3%      OK
Extracting ROMS/Fishing Derby (CCE).bin      1
          3%      OK
Extracting ROMS/Fishing Derby (Hack) (2600 Screen Search Console) (Jone Yuan Teleph
onic Enterprise Co).bin      13%      OK
Extracting ROMS/Fishing Derby (Hack) (32 in 1) (Bit Corporation) (R320).bin
          13%      OK
Extracting ROMS/Fishing Derby (Hack) (Unknown) (PAL).bin      1
          3%      OK
Extracting ROMS/Fishing Derby - Schneller als der Hai (1980) (Activision, David Cra
ne - Ariola) (EAG-004, PAG-004 - 711 004-715) (PAL).bin      13%      OK
Extracting ROMS/Flag Capture (32 in 1) (1988) (Atari, Jim Huether) (CX26163P) (PA
L).bin      13%      OK
Extracting ROMS/Flag Capture (Unknown) (PAL).bin      1
          3%      OK
Extracting ROMS/Flag Capture - Capture (Capture the Flag) (1978) (Atari, Jim Huethe
r - Sears) (CX2644 - 6-99824) ~.bin      13%      OK
Extracting ROMS/Flash Gordon (1983) (20th Century Fox Video Games - Sirius Softwar
e, David Lubar) (11015) ~.bin      13%      OK
Extracting ROMS/Flash Gordon (Hack) (32 in 1) (Bit Corporation) (R320).bin
          13%      OK
Extracting ROMS/Flash Gordon (Unknown) (PAL).bin      1
          3%      OK
Extracting ROMS/Flippern (AKA Video Pinball) (Double-Game Package) (1983) (Otto Ver
sand) (781698) (PAL).bin      13%      OK
Extracting ROMS/Football (1979) (Atari, Bob Whitehead - Sears) (CX2625 - 6-99827, 4
9-75114) ~.bin      13%      OK
Extracting ROMS/Football (AKA Super Challenge Football) (1988) (Telegames) (5658 A0
88) (PAL).bin      13%      OK
Extracting ROMS/Football (AKA Super Challenge Football) (1988) (Telegames) (5658 A0
88).bin      13%      OK
Extracting ROMS/Football (Unknown) (PAL) (4K).bin      1
          3%      OK
Extracting ROMS/Football (Unknown) (PAL).bin      1
          3%      OK
Extracting ROMS/Football Demo (1982) (Atari, Robert Zdybel) ~.bin      1
          3%      OK
Extracting ROMS/Forest (1983) (Sancho - Tang's Electronic Co.) (TEC006) (PAL) ~.bin
          13%      OK
Extracting ROMS/Fox & Goat (AKA Nuts) (Double-Game Package) (1983) (Otto Versand)
          (311377) (PAL).bin      13%      OK
Extracting ROMS/Frankenstein's Monster (1982) (Data Age, J. Ray Dettling) (112-008)
          (Prototype).bin      13%      OK
Extracting ROMS/Frankenstein's Monster (1983) (Data Age, J. Ray Dettling) (112-008)
          ~.bin      13%      OK
Extracting ROMS/Frankenstein's Monster (1983) (Gameworld, J. Ray Dettling) (133-00
8) (PAL).bin      13%      OK
Extracting ROMS/Freeway (1981) (Activision, David Crane) (AG-009, AG-009-04) ~.bin
          13%      OK
Extracting ROMS/Freeway (Canal 3 - Intellivision) (4K).bin      1
          3%      OK
Extracting ROMS/Freeway (CCE).bin      1
          3%      OK
Extracting ROMS/Freeway (Dactari - Milmar).bin      1
          3%      OK
Extracting ROMS/Freeway (Hack) (Unknown) (PAL).bin      1
          3%      OK
Extracting ROMS/Freeway (Zellers).bin      1

```

3% OK
 Extracting ROMS/Freeway - Das verrueckte Huhn (1981) (Activision, David Crane - Ariola) (EAG-009, PAG-009 - 711 009-720) (PAL).bin 13% OK
 Extracting ROMS/Freeway Chicken (AKA Freeway) (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 13% OK
 Extracting ROMS/Freeway Rabbit (AKA Freeway) (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 13% OK
 Extracting ROMS/Frisco (1983) (Home Vision, R.J.P.G. - Gem International Corporation - VDI) (VCS83104) (~.bin) 13% OK
 Extracting ROMS/Frisco (Hack) (Unknown) (PAL).bin 1
 3% OK
 Extracting ROMS/Frisco (Unknown).bin 1
 3% OK
 Extracting ROMS/Frog Demo (1983) (CommaVid, Joseph Biel) (PAL) ~.bin 1
 3% OK
 Extracting ROMS/Frog Pond (08-27-1982) (Atari, Nick 'Sandy Maiwald' Turner) (CX2665) (Prototype) (~.bin) 13% OK
 Extracting ROMS/Frog Pond (1982) (Atari, Nick 'Sandy Maiwald' Turner) (CX2665) (Prototype) (4K) [a].bin 13% OK
 Extracting ROMS/Frog Pond (1982) (Atari, Nick 'Sandy Maiwald' Turner) (CX2665) (Prototype) (4K).bin 13% OK
 Extracting ROMS/Frog Pond (1982) (Atari, Nick 'Sandy Maiwald' Turner) (CX2665) (Prototype).bin 13% OK
 Extracting ROMS/Frogger (1982) (Parker Brothers, Ed English, David Lamkins) (931502) (PAL).bin 13% OK
 Extracting ROMS/Frogger (1982) (Parker Brothers, Ed English, David Lamkins) (PB5300) (~.bin) 13% OK
 Extracting ROMS/Frogger II - Threedeep! (1984) (Parker Brothers, Mark Lesser) (PB5590) (PAL).bin 13% OK
 Extracting ROMS/Frogger II - Threedeep! (1984) (Parker Brothers, Mark Lesser) (PB5590) (~.bin) 13% OK
 Extracting ROMS/Frogs and Flies (1988) (Telegames) (PAL).bin 1
 3% OK
 Extracting ROMS/Frogs and Flies (Hack) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 13% OK
 Extracting ROMS/Frogs and Flies - Frogs 'n' Flies (1982) (M Network - INTV - APh Technological Consulting, David Rolfe) (~.bin) 13% OK
 Extracting ROMS/Front Line (1984) (Coleco - Individeo, Ed Temple) (2665) (~.bin) 13% OK
 Extracting ROMS/Frontline (AKA Combat) (Zellers).bin 1
 3% OK
 Extracting ROMS/Frostbite (1983) (Digitel).bin 1
 3% OK
 Extracting ROMS/Frostbite (1983) (Video Mania).bin 1
 3% OK
 Extracting ROMS/Frostbite (CCE).bin 1
 3% OK
 Extracting ROMS/Frostbite (Digivision).bin 1
 4% OK
 Extracting ROMS/Frostbite (Fotomania).bin 1
 4% OK
 Extracting ROMS/Frostbite (Iceman) (1983) (Activision, Steve Cartwright) (AX-031) (~.bin) 14% OK
 Extracting ROMS/Frostbite - Expedition ins Eis (Iceman) (1983) (Activision, Steve Cartwright - Ariola) (EAX-031, EAX-031-04B - 711 031-717) (PAL).bin 14% OK
 Extracting ROMS/Fuchs & Schweinchen Schlau (AKA Oink!) (1983) (Quelle) (806.174 9) (PAL).bin 14% OK
 Extracting ROMS/Fun with Numbers (32 in 1) (1988) (Atari, Gary Palmer) (CX26163P) (PAL).bin 14% OK
 Extracting ROMS/Fun with Numbers (AKA Basic Math) (1980) (Atari, Gary Palmer) (CX2661).bin 14% OK
 Extracting ROMS/Fun with Numbers (AKA Basic Math) (1980) (Atari, Gary Palmer) (CX2661P) (PAL).bin 14% OK

Extracting ROMS/Funky Fish (1983) (UA Limited) (Prototype) ~.bin	1
4% OK	
Extracting ROMS/Fussball (AKA International Soccer) (Videospielkassette - Ariola) (PGP235) (PAL).bin	
14% OK	
Extracting ROMS/G.I. Joe - Cobra Strike (Paddle) (1983) (Parker Brothers, John Emerson) (PB5920) ~.bin	
14% OK	
Extracting ROMS/Galactic (AKA Condor Attack) (1983) (Goliath - Hot Shot) (83-416) (PAL).bin	
14% OK	
Extracting ROMS/Galactic (AKA Condor Attack) (Funvision - Fund. International Co.) (PAL).bin	
14% OK	
Extracting ROMS/Galactic (AKA The Challenge of.... Naxar) (1983) (Quelle) (218.202 0) (PAL).bin	
14% OK	
Extracting ROMS/Galactic (AKA The Challenge of.... Naxar) (1983) (Rainbow Vision - Suntek) (SS-002) (PAL) [a].bin	
14% OK	
Extracting ROMS/Galactic (AKA The Challenge of.... Naxar) (1983) (Rainbow Vision - Suntek) (SS-002) (PAL).bin	
14% OK	
Extracting ROMS/Galactic (AKA The Challenge of.... Naxar) (Unknown) (PAL).bin	
14% OK	
Extracting ROMS/Galaxian (01-05-1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684) (Prototype).bin	
14% OK	
Extracting ROMS/Galaxian (02-04-1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684) (Prototype).bin	
14% OK	
Extracting ROMS/Galaxian (1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684) ~.bin	
14% OK	
Extracting ROMS/Galaxian (1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684, CX2684P) (PAL).bin	
14% OK	
Extracting ROMS/Galaxian (CCE).bin	1
4% OK	
Extracting ROMS/Galaxian (Digivision).bin	1
4% OK	
Extracting ROMS/Galaxian (Edu Games - Edu Juegos) (PAL).bin	1
4% OK	
Extracting ROMS/Game of Concentration, A (AKA Hunt & Score) (Keyboard Controller) (1980) (Atari, Alan Miller) (CX2642P) (PAL).bin	
14% OK	
Extracting ROMS/Game of Concentration, A - Concentration (AKA Hunt & Score) (Keyboard Controller) (1980) (Atari, Alan Miller) (CX2642).bin	
14% OK	
Extracting ROMS/GameLine Master Module ROM (1983) (Control Video Corporation) ~.bin	
14% OK	
Extracting ROMS/Gamma-Attack (1983) (Gammation, Robert L. Esken Jr.) ~.bin	
14% OK	
Extracting ROMS/Gangster (AKA Outlaw) (Videospielkassette - Ariola) (PGP238) (PAL).bin	
14% OK	
Extracting ROMS/Gangster Alley (1982) (Spectravision - Spectravideo) (SA-201) [fixed] ~.bin	
14% OK	
Extracting ROMS/Gangster Alley (1982) (Spectravision - Spectravideo) (SA-201) ~.bin	
14% OK	
Extracting ROMS/Gangster Alley - Gangster Ruine (1982) (Spectravision - Spectravideo - Quelle) (SA-201 - 412.783 3) (PAL).bin	
14% OK	
Extracting ROMS/Garfield (Garfield on the Run) (06-21-1984) (Atari, Mimi Nyden, Steve Woita) (CX26132) (Prototype) ~.bin	
14% OK	
Extracting ROMS/Gas Hog (1983) (Spectravideo, Mark Turmell) (SA-217) [fixed] ~.bin	
14% OK	
Extracting ROMS/Gas Hog (1983) (Spectravideo, Mark Turmell) (SA-217) ~.bin	
14% OK	
Extracting ROMS/Gas Hog (Unknown).bin	1
4% OK	
Extracting ROMS/Gas Hog - Piraten Schiff (1983) (Spectravideo, Mark Turmell - Quelle) (SA-217, SA-217C - 413.723 8) (PAL).bin	
14% OK	
Extracting ROMS/Gauntlet (1983) (Answer Software Corporation - TY Associates, Mike Wente) (ASC1002) ~.bin	
14% OK	
Extracting ROMS/Gefährliche Maeusejagd (AKA Topy) (1983) (Quelle) (719.551 4) (PAL).bin	
14% OK	
Extracting ROMS/Gefecht im All (AKA Space Jockey) (1983) (Quelle) (147.443 6) (PAL).bin	
14% OK	

Extracting ROMS/General Re-Treat (AKA Custer's Revenge) (1982) (PlayAround - JHM) (206) (PAL).bin 14% OK
 Extracting ROMS/Ghost Manor (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 06002, 06004, 99002) (PAL).bin 14% OK
 Extracting ROMS/Ghost Manor (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 06002, 06004, 99002) ~.bin 14% OK
 Extracting ROMS/Ghostbusters (1985) (Activision, David Crane, Dan Kitchen) (AZ-108-04) ~.bin 14% OK
 Extracting ROMS/Ghostbusters (1985) (Activision, David Crane, Dan Kitchen) (EAG-108-04, EAZ-108-04B) (PAL).bin 14% OK
 Extracting ROMS/Ghostbusters II (1992) (Salu - Avantgarde Software, Michael Buetepage) (460741) (PAL) [different tune] ~.bin 14% OK
 Extracting ROMS/Ghostbusters II (1992) (Salu - Avantgarde Software, Michael Buetepage) (460741) (PAL) ~.bin 14% OK
 Extracting ROMS/Gigolo (1982) (PlayAround - JHM) (205).bin 1
 4% OK
 Extracting ROMS/Glacier Patrol (1988) (Telegames - VSS, Ed Salvo) (5665 A016) (PAL).bin 14% OK
 Extracting ROMS/Glacier Patrol (1988) (Telegames - VSS, Ed Salvo) (5667 A106) ~.bin 14% OK
 Extracting ROMS/Glib - Video Word Game (Head of the Class) (1983) (QDI, Mike Montana, Rich Montana - Selchow & Righter) (87) ~.bin 14% OK
 Extracting ROMS/Go Go Home (Unknown).bin 1
 4% OK
 Extracting ROMS/Go Go Home Monster (AKA Go Go Home) (1983) (Home Vision - Gem International Corporation - VDI) (PAL).bin 14% OK
 Extracting ROMS/Going-Up (1983) (Starpath Corporation) (Prototype) ~.bin 1
 4% OK
 Extracting ROMS/Golf (32 in 1) (1988) (Atari, Tom Reuterdahl) (CX26163P) (PAL).bin 14% OK
 Extracting ROMS/Golf (Championship Golf) (1980) (Atari, Tom Reuterdahl - Sears) (CX2634 - 49-75121) ~.bin 14% OK
 Extracting ROMS/Golf (Championship Golf) (1980) (Atari, Tom Reuterdahl) (CX2634, CX2634P) (PAL).bin 14% OK
 Extracting ROMS/Golf (Hack) (32 in 1) (Bit Corporation) (R320).bin 1
 4% OK
 Extracting ROMS/Golf (Unknown) (PAL).bin 1
 5% OK
 Extracting ROMS/Golf Diagnostic (1983) (Video Soft, Jerry Lawson, Dan McElroy) (Prototype) ~.bin 15% OK
 Extracting ROMS/Good Luck, Charlie Brown (04-18-1984) (Atari, Christopher H. Omarzu, Courtney Granner) (CX26112) (Prototype) ~.bin 15% OK
 Extracting ROMS/Gopher (Gopher Attack) (1982) (U.S. Games Corporation - JWDA, Sylvia Day, Todd Marshall, Robin McDaniel, Henry Will IV) (VC2001) ~.bin 1
 5% OK
 Extracting ROMS/Gopher (Unknown) (PAL) [a].bin 1
 5% OK
 Extracting ROMS/Gopher (Unknown) (PAL).bin 1
 5% OK
 Extracting ROMS/Gopher - Vorsicht Wühlmaus! (1983) (Carrere Video - JWDA, Sylvia Day, Todd Marshall, Robin McDaniel, Henry Will IV - Teldec - Prism) (USC2001) (PAL).bin 15% OK
 Extracting ROMS/Gorf (1982) (CBS Electronics - Roklan, Joe Gaucher, Dan Kurczewski, Alex Leavens, Kathy Von) (4L1751, 4L1752, 4L1753, 4L2275) (PAL).bin 1
 5% OK
 Extracting ROMS/Gorf (1982) (CBS Electronics - Roklan, Joe Gaucher, Dan Kurczewski, Alex Leavens, Kathy Von) (M8776, M8793) (Prototype).bin 15% OK
 Extracting ROMS/Gorf (1982) (CBS Electronics - Roklan, Joe Gaucher, Dan Kurczewski, Alex Leavens, Kathy Von) (M8776, M8793) ~.bin 15% OK
 Extracting ROMS/Grand Prix (1982) (Activision, David Crane - Ariola) (EAX-014, PAX-014, EAX-014-04B, EAX-014-04I - 711 014-720) (PAL).bin 15% OK
 Extracting ROMS/Grand Prix (1982) (Activision, David Crane) (AX-014, AX-014-04) ~.bin 15% OK
 Extracting ROMS/Grand Prix (1983) (CCE) (C-826) [a].bin 1

```

5%      OK
Extracting ROMS/Grand Prix (1983) (CCE) (C-826).bin                         1
5%      OK
Extracting ROMS/Grand Prix (Robby).bin                                         1
5%      OK
Extracting ROMS/Grand Prix (Unknown) (PAL).bin                                    1
5%      OK
Extracting ROMS/Gravitar (04-12-1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2685) (P
rototype).bin           15%      OK
Extracting ROMS/Gravitar (1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2685) ~.bin
15%      OK
Extracting ROMS/Gravitar (CCE).bin                                              1
5%      OK
Extracting ROMS/Great Escape (AKA Asteroid Fire) (1983) (Bomb - Onbase) (CA282) (PA
L).bin           15%      OK
Extracting ROMS/Great Escape (AKA Asteroid Fire) (1983) (Bomb - Onbase) (CA282).bin
15%      OK
Extracting ROMS/Gremlins (Gargoyle) (03-12-1984) (Atari, Mimi Nyden, Scott Smith, R
obert Vieira) (CX26127) (Prototype).bin           15%      OK
Extracting ROMS/Gremlins (Gargoyle) (1984) (Atari, Mimi Nyden, Scott Smith, Robert
Vieira) (CX26127) ~.bin           15%      OK
Extracting ROMS/Ground Zero (AKA River Raid) (1983) (Goliath - Hot Shot) (83-113)
(PAL).bin           15%      OK
Extracting ROMS/Grover's Music Maker (Monkey Music) (Kid's Controller) (01-18-1983)
(Atari - CCW, Stephan R. Keith, Laura Scholl, Preston Stuart) (CX26106) (Prototype)
~.bin           15%      OK
Extracting ROMS/Grover's Music Maker (Monkey Music) (Kid's Controller) (12-29-1982)
(Atari - CCW, Stephan R. Keith, Laura Scholl, Preston Stuart) (CX26106) (Prototype).
bin           15%      OK
Extracting ROMS/Guardian (Cosmic Combat) (Paddle) (1982) (Apollo, Larry Martin) (AP
-2008) (Prototype).bin           15%      OK
Extracting ROMS/Guardian (Cosmic Combat) (Paddle) (1982) (Apollo, Larry Martin) (AP
-2008) ~.bin           15%      OK
Extracting ROMS/Guignol (Unknown) (PAL).bin                                         1
5%      OK
Extracting ROMS/Gyruss (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (Pro
totype) (PAL) [a].bin           15%      OK
Extracting ROMS/Gyruss (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (Pro
totype) (PAL).bin           15%      OK
Extracting ROMS/Gyruss (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (Pro
totype) [a1].bin           15%      OK
Extracting ROMS/Gyruss (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (Pro
totype) [a2].bin           15%      OK
Extracting ROMS/Gyruss (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (Pro
totype).bin           15%      OK
Extracting ROMS/Gyruss (1984) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (PA
L).bin           15%      OK
Extracting ROMS/Gyruss (1984) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) ~.bi
n           15%      OK
Extracting ROMS/H.E.R.O. (1984) (Activision, John Van Ryzin) (AZ-036-04) ~.bin
15%      OK
Extracting ROMS/H.E.R.O. (1984) (Activision, John Van Ryzin) (EAZ-036-04) (SECAM).b
in           15%      OK
Extracting ROMS/H.E.R.O. (CCE).bin                                              1
5%      OK
Extracting ROMS/H.E.R.O. (Tron).bin                                             1
5%      OK
Extracting ROMS/H.E.R.O. - Helicopter-Held (1984) (Activision, John Van Ryzin - Ari
ola) (EAZ-036-04, EAZ-036-04B, EAZ-036-04I - 711 036-720) (PAL).bin                         1
5%      OK
Extracting ROMS/Halloween (1983) (Wizard Video Games - VSS - MicroGraphicImage, Rob
ert Barber, Tim Martin) (007) (Prototype) [a].bin           15%      OK
Extracting ROMS/Halloween (1983) (Wizard Video Games - VSS - MicroGraphicImage, Rob
ert Barber, Tim Martin) (007) (Prototype).bin           15%      OK

```

Extracting ROMS/Halloween (1983) (Wizard Video Games - VSS - MicroGraphicImage, Robert Barber, Tim Martin) (007) ~.bin 15% OK
 Extracting ROMS/Hangman (1978) (Atari, Alan Miller) (CX2662P) (PAL).bin 1
 5% OK
 Extracting ROMS/Hangman - Spelling (1978) (Atari, Alan Miller - Sears) (CX2662 - 6-99811) ~.bin 15% OK
 Extracting ROMS/Harbor Escape (AKA River Raid) (1983) (Panda) (110).bin 1
 5% OK
 Extracting ROMS/Hard-Head (1983) (Activision) (Prototype) ~.bin 1
 5% OK
 Extracting ROMS/Harem (1982) (Multivision, Michael Case) ~.bin 1
 5% OK
 Extracting ROMS/Haunted House (Mystery Mansion, Graves' Manor, Nightmare Manor) (08-12-81) (Atari, James Andreasen - Sears) (CX2654 - 49-75141) (Prototype).bin
 16% OK
 Extracting ROMS/Haunted House (Mystery Mansion, Graves' Manor, Nightmare Manor) (09-28-81) (Atari, James Andreasen - Sears) (CX2654 - 49-75141) (Prototype).bin
 16% OK
 Extracting ROMS/Haunted House (Mystery Mansion, Graves' Manor, Nightmare Manor) (1982) (Atari, James Andreasen - Sears) (CX2654 - 49-75141) ~.bin 16% OK
 Extracting ROMS/Haunted House (Mystery Mansion, Graves' Manor, Nightmare Manor) (1982) (Atari, James Andreasen) (CX2654) (PAL).bin 16% OK
 Extracting ROMS/Heart Like a Wheel (1983) (20th Century Fox Video Games - Microcomputer Technologies, Jim Collas) (Prototype) ~.bin 16% OK
 Extracting ROMS/Hell Driver (AKA Racing Car) (1983) (ITT Family Games) (554-37 729) (PAL).bin 16% OK
 Extracting ROMS/Hey! Stop! (AKA Keystone Kapers) (1983) (Rainbow Vision - Suntek) (SS-012) (PAL).bin 16% OK
 Extracting ROMS/Hey! Stop! (AKA Keystone Kapers) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 16% OK
 Extracting ROMS/Hili Ball (AKA Racquetball) (1983) (Quelle) (689.302 8) (PAL).bin
 16% OK
 Extracting ROMS/Hole Hunter (AKA Topy) (Video Game Cartridge - Ariola) (TP-606).bin
 16% OK
 Extracting ROMS/Holey Moley (Kid's Controller) (02-29-1984) (Atari, Robert C. Polar o) (CX26130) (Prototype) ~.bin 16% OK
 Extracting ROMS/Home Run (Unknown) (PAL).bin 1
 6% OK
 Extracting ROMS/Home Run - Baseball (1978) (Atari, Bob Whitehead - Sears) (CX2623 - 6-99819, 49-75108, 49-75125) ~.bin 16% OK
 Extracting ROMS/Homerun - Horrrorun (32 in 1) (1988) (Atari, Bob Whitehead) (CX2616 3P) (PAL).bin 16% OK
 Extracting ROMS/Hot Action Pak - Ghostbusters, Tennis, Plaque Attack (1990) (HES - Activision) (542) (PAL).bin 16% OK
 Extracting ROMS/Hot Wave (AKA Ram It) (Double-Game Package) (1983) (Otto Versand) (746422) (PAL).bin 16% OK
 Extracting ROMS/Human Cannonball (128-in-1 Junior Console) (PAL).bin 1
 6% OK
 Extracting ROMS/Human Cannonball (1979) (Atari) (CX2627, CX2627P) (PAL).bin
 16% OK
 Extracting ROMS/Human Cannonball (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin
 16% OK
 Extracting ROMS/Human Cannonball - Cannon Man (1979) (Atari - Sears) (CX2627 - 6-99841) ~.bin 16% OK
 Extracting ROMS/Hunt & Score (Keyboard Controller) (1978) (Atari, Alan Miller) (CX2642) (PAL).bin 16% OK
 Extracting ROMS/Hunt & Score - Memory Match (Keyboard Controller) (1978) (Atari, Alan Miller - Sears) (CX2642 - 6-99814) ~.bin 16% OK
 Extracting ROMS/I Want My Mommy (AKA Open, Sesame!) (KidStuff) (1983) (ZiMAG - Emag - Vidco) (710-111 - GN-010).bin 16% OK
 Extracting ROMS/I.Q. Memory Teaser (AKA IQ 180) (1983) (Suntek) (SS-033) (PAL).bin
 16% OK
 Extracting ROMS/Ice Hockey (Canal 3 - Intellivision).bin 1
 6% OK

Extracting ROMS/Ice Hockey (CCE).bin	1
6% OK	
Extracting ROMS/Ice Hockey - Eishockey (1981) (Activision, Alan Miller - Ariola) (E AG-012-04I, EAX-012, EAX-012-04B - 711 012-720) (PAL).bin	16% OK
Extracting ROMS/Ice Hockey - Hockey, Hockey (4 Game in One) (1983) (Bit Corporation) (PGP210) (PAL).bin	16% OK
Extracting ROMS/Ice Hockey - Le Hockey Sur Glace (1981) (Activision, Alan Miller) (AX-012, CAX-012, AX-012-04) ~.bin	16% OK
Extracting ROMS/Iceman (Frostbite Beta) (07-27-1983) (Activision, Steve Cartwright) (AX-031) (Prototype).bin	16% OK
Extracting ROMS/Ikari Warriors (1991) (Atari - Imagineering, Dan Kitchen) (CX26177) (PAL).bin	16% OK
Extracting ROMS/Ikari Warriors (1991) (Atari - Imagineering, Dan Kitchen) (CX26177) ~.bin	16% OK
Extracting ROMS/Im Reich der Spinne (AKA Amidar) (1983) (Quelle) (322.773 3) (PAL).bin	16% OK
Extracting ROMS/Im Schutz der Drachen (AKA Dragon Power) (1983) (Quelle) (719.252 9) (PAL).bin	16% OK
Extracting ROMS/Imagic Selector ROM (1982) (Imagic) (PAL).bin	1
6% OK	
Extracting ROMS/Imagic Selector ROM (1982) (Imagic) [a].bin	1
6% OK	
Extracting ROMS/Imagic Selector ROM (1982) (Imagic) ~.bin	1
6% OK	
Extracting ROMS/Immies & Aggies (1983) (CCE) (C-838).bin	1
6% OK	
Extracting ROMS/Immies & Aggies (Unknown).bin	1
6% OK	
Extracting ROMS/Immies & Aggies - Immies and Aggies (1983) (ZiMAG - Emag - Vidco) (715-111 - GN-060) (Prototype) ~.bin	16% OK
Extracting ROMS/Inca Gold (Unknown) (PAL) [a].bin	1
6% OK	
Extracting ROMS/Inca Gold (Unknown) (PAL).bin	1
6% OK	
Extracting ROMS/Inca Gold (Zellers).bin	1
6% OK	
Extracting ROMS/Indy 500 (Race Car) (Driving Controller) (1977) (Atari, Carla Meninsky, Ed Riddle) (CX2611, CX2611P) (PAL).bin	16% OK
Extracting ROMS/Indy 500 - Race (Race Car) (Driving Controller) (1977) (Atari, Carla Meninsky, Ed Riddle - Sears) (CX2611 - 99821, 49-75149) ~.bin	16% 0 K
Extracting ROMS/Infernol Tower (AKA Towering Inferno) (1983) (Carrere Video - Western Technologies, Jeff Corsiglia, Paul Allen Newell, Tom Sloper - Teldec - Prism) (US C1009) (PAL).bin	16% OK
Extracting ROMS/Infiltrate (1982) (Apollo - Games by Apollo) (AP-2006) (Prototype) [a].bin	16% OK
Extracting ROMS/Infiltrate (1982) (Apollo - Games by Apollo) (AP-2006) (Prototype).bin	16% OK
Extracting ROMS/Infiltrate (1982) (Apollo - Games by Apollo) (AP-2006) ~.bin	16% OK
Extracting ROMS/Infiltrate (Unknown) (PAL).bin	1
6% OK	
Extracting ROMS/Infiltrate - Nid d'espions (1982) (Apollo - Games by Apollo - RCA Vidéo Jeux) (AP-2006) (PAL).bin	16% OK
Extracting ROMS/Innerspace (1983) (VentureVision, Dan Oliver) (Prototype).bin	16% OK
Extracting ROMS/International Soccer (1982) (M Network - APh Technological Consulting, Kevin Miller) (MT5687) ~.bin	16% OK
Extracting ROMS/International Soccer (1988) (Telegames) (5687 A279) (PAL).bin	16% OK
Extracting ROMS/IQ 180 (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin	16% OK
Extracting ROMS/IQ 180 (Unknown).bin	1
6% OK	

Extracting ROMS/Ixion (1984) (SEGA, Jeff Lorenz) (Prototype) ~.bin	1
6% OK	
Extracting ROMS/Jacky Jump (AKA Bobby Is Going Home) (1983) (Home Vision - Gem International Corporation - VDI) (PAL).bin	16% OK
Extracting ROMS/Jagd auf Diamanten-Frisco (AKA Frisco) (1983) (Quelle) (875.413 7) (PAL).bin	16% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype) [a1].bin	16% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype) [a2].bin	16% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype) [a3].bin	17% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype) [a4].bin	17% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype) [a5].bin	17% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1983) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) (Prototype).bin	17% OK
Extracting ROMS/James Bond 007 (James Bond Agent 007) (1984) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von) (PB5110) ~.bin	
17% OK	
Extracting ROMS/Jawbreaker (1982) (Tigervision, John Harris - Teldec) (7-002 - 3.60002 VE) (PAL).bin	17% OK
Extracting ROMS/Jawbreaker (1982) (Tigervision, John Harris) (7-002) ~.bin	
17% OK	
Extracting ROMS/Jawbreaker (Hack) (32 in 1) (Bit Corporation) (R320).bin	1
7% OK	
Extracting ROMS/Jawbreaker (Unknown) (PAL).bin	1
7% OK	
Extracting ROMS/Journey Escape (1983) (Data Age, J. Ray Dettling) (112-006) ~.bin	
17% OK	
Extracting ROMS/Journey Escape - Rock 'n' Roll Escape (1983) (Gameworld, J. Ray Dettling) (133-006) (PAL).bin	17% OK
Extracting ROMS/Joust (07-05-1983) (Atari - GCC, Mike Feinstein, Kevin Osborn) (CX2691) (Prototype).bin	17% OK
Extracting ROMS/Joust (08-09-1983) (Atari - GCC, Mike Feinstein, Kevin Osborn) (CX2691) (Prototype).bin	17% OK
Extracting ROMS/Joust (1983) (Atari - GCC, Mike Feinstein, Kevin Osborn) (CX2691) ~.bin	17% OK
Extracting ROMS/Joust (1983) (Atari - GCC, Mike Feinstein, Kevin Osborn) (CX2691, CX2691P) (PAL).bin	17% OK
Extracting ROMS/Jr. Pac-Man (1986) (Atari - GCC, Ava-Robin Cohen) (CX26123) ~.bin	
17% OK	
Extracting ROMS/Jr. Pac-Man (1986) (Atari - GCC, Ava-Robin Cohen) (CX26123, CX26123P) (PAL).bin	17% OK
Extracting ROMS/Jumping Jack (AKA Bobby Is Going Home) (1983) (Dynamics) (DY-293005) (PAL).bin	17% OK
Extracting ROMS/Jungle Fever (1982) (PlayAround - JHM) (203).bin	1
7% OK	
Extracting ROMS/Jungle Hunt (02-03-1983) (Atari - GCC, John Allred, Mike Feinstein) (CX2688) (Prototype).bin	17% OK
Extracting ROMS/Jungle Hunt (02-25-1983) (Atari - GCC, John Allred, Mike Feinstein) (CX2688) (Prototype).bin	17% OK
Extracting ROMS/Jungle Hunt (1983) (Atari - GCC, John Allred, Mike Feinstein) (CX2688) ~.bin	17% OK
Extracting ROMS/Jungle Hunt (1983) (Atari - GCC, John Allred, Mike Feinstein) (CX2688, CX2688P) (PAL).bin	17% OK
Extracting ROMS/Jungle Hunt (1983) (CCE) (C-1007).bin	1

```

7%      OK
Extracting ROMS/Jungle Hunt (Unknown).bin                                1
7%      OK
Extracting ROMS/Kabobber (07-25-1983) (Activision - Boston Design Center, Rex Bradf
ord) (Prototype) ~.bin          17%      OK
Extracting ROMS/Kaboom! (Paddle) (1981) (Activision, Larry Kaplan, David Crane) (AG
-010, CAG-010, AG-010-04) ~.bin      17%      OK
Extracting ROMS/Kaboom! (Paddle) (CCE).bin                               1
7%      OK
Extracting ROMS/Kaboom! - Schneller als der Knall (Paddle) (1981) (Activision, Larr
y Kaplan, David Crane - Ariola) (EAG-010, PAG-010 - 711 010-720) (PAL).bin
    17%      OK
Extracting ROMS/Kamikaze Saucers (1983) (Syncro, Daniel Wolf) (Prototype) ~.bin
    17%      OK
Extracting ROMS/Kampf dem Steinfresser - Boom Bang (AKA Crackpots) (1983) (Quelle -
Otto Versand) (463.574 4 - 781393, 986153) (PAL).bin          17%      OK
Extracting ROMS/Kampf im Asteroiden-Guertel - Astrowar (1983) (Quelle - Otto Versan
d) (719.302 2 - 311388) (PAL).bin          17%      OK
Extracting ROMS/Kampf um die Schatzinsel (AKA Treasure Discovery) (1983) (Quelle)
(719.163 8) (PAL).bin          17%      OK
Extracting ROMS/Kangaroo (01-19-1983) (Atari - GCC, Kevin Osborn) (CX2689) (Prototy
pe).bin          17%      OK
Extracting ROMS/Kangaroo (1983) (Atari - GCC, Kevin Osborn) (CX2689) ~.bin
    17%      OK
Extracting ROMS/Kangaroo (1983) (Atari - GCC, Kevin Osborn) (CX2689, CX2689P) (PA
L).bin          17%      OK
Extracting ROMS/Kanguru (AKA Kangaroo) (1983) (Zirok).bin                               1
7%      OK
Extracting ROMS/Karate (1982) (Funvision - Fund. International Co.) (PAL).bin
    17%      OK
Extracting ROMS/Karate (1982) (Ultravision, Joseph Amelio) (1044) ~.bin                               1
7%      OK
Extracting ROMS/Karate (1987) (Froggo) (FG1001).bin                               1
7%      OK
Extracting ROMS/Karate (Unknown) (PAL).bin                               1
7%      OK
Extracting ROMS/Katastrophen-Einsatz (AKA M.A.S.H.) (1983) (Quelle) (876.013 4) (PA
L).bin          17%      OK
Extracting ROMS/Kaystone Kapers (AKA Keystone Kapers) (1983) (Digitel).bin
    17%      OK
Extracting ROMS/Keystone (AKA Keystone Kapers) (Tiger Vision - Eram).bin                               1
7%      OK
Extracting ROMS/Keystone Kapers (1983) (Activision, Garry Kitchen) (AX-025, AX-025-
04) ~.bin          18%      OK
Extracting ROMS/Keystone Kapers (1983) (Activision, Garry Kitchen) (EAX-025) (SECA
M).bin          18%      OK
Extracting ROMS/Keystone Kapers (Canal 3 - Intellivision) (C 3014).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Digivision).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Fotomania).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Robby).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Shock Vision).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Unknown) (PAL) [a].bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Unknown) (PAL).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers (Unknown).bin                               1
8%      OK
Extracting ROMS/Keystone Kapers - Raueber und Gendarm (1983) (Activision, Garry Kit
chen - Ariola) (EAX-025, EAX-025-04I - 711 025-725) (PAL).bin          18%      OK

```

Extracting ROMS/Keystone Kappers (AKA Keystone Kapers) (1983) (CCE) (C-816) [a].bin
18% OK

Extracting ROMS/Keystone Kappers (AKA Keystone Kapers) (1983) (CCE) (C-816).bin
18% OK

Extracting ROMS/Keystone Keypers (AKA Keystone Kapers) (1983) (Zirok).bin
18% OK

Extracting ROMS/Kick-Man (01-08-82) (CBS Electronics, Richard K. Balaska Jr., Bob Curtiss, Alex Leavens, Alex Nevelson) (Prototype) ~.bin 18% OK

Extracting ROMS/Killer Satellites (1983) (Starpath Corporation, Kevin Norman) (7) (AR-4103) (PAL).bin 18% OK

Extracting ROMS/Killer Satellites (1983) (Starpath Corporation, Kevin Norman) (7) (AR-4103) (Prototype).bin 18% OK

Extracting ROMS/Killer Satellites (1983) (Starpath Corporation, Kevin Norman) (7) (AR-4103) ~.bin 18% OK

Extracting ROMS/King Arthur (AKA Dragonfire) (Double-Game Package) (1983) (Otto Versand) (600273) (PAL).bin 18% OK

Extracting ROMS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger - Teldec) (7-001 - 3.60001 VE) (PAL) [a].bin 18% OK

Extracting ROMS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger - Teldec) (7-001 - 3.60001 VE) (PAL).bin 18% OK

Extracting ROMS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger) (7-001) ~.bin 18% OK

Extracting ROMS/Klax (06-14-1990) (Atari - Axlon, Steve DeFrisco) (CX26192) (Prototype).bin 18% OK

Extracting ROMS/Klax (08-18-1990) (Atari - Axlon, Steve DeFrisco) (CX26192) (Prototype).bin 18% OK

Extracting ROMS/Klax (1991) (Atari - Axlon, Steve DeFrisco) (CX26192) (PAL) ~.bin
18% OK

Extracting ROMS/Knight on the Town (1982) (PlayAround - JHM) (203) (PAL).bin
18% OK

Extracting ROMS/Knight on the Town (1982) (PlayAround - JHM) (203).bin
8% OK 1

Extracting ROMS/Kool-Aid Man (Kool Aid Pitcher Man) (1983) (M Network, Stephen Tatsumi, Jane Terjung - Kool Aid) (MT4648) ~.bin 18% OK

Extracting ROMS/Krieg der Sterne (AKA Atlantis) (Videospielkassette - Ariola) (PGP2 33) (PAL).bin 18% OK

Extracting ROMS/Krull (05-27-1983) (Atari, Jerome Domurat, Dave Staugas) (CX2682) (Prototype).bin 18% OK

Extracting ROMS/Krull (1983) (Atari, Jerome Domurat, Dave Staugas) (CX2682) ~.bin
18% OK

Extracting ROMS/Krull (CCE).bin
8% OK 1

Extracting ROMS/Krull (Unknown) (PAL).bin
8% OK 1

Extracting ROMS/Kung Fu (AKA Karate) (4 Game in One) (1983) (Bit Corporation) (PGP2 29) (PAL).bin 18% OK

Extracting ROMS/Kung Fu Master (CCE).bin
8% OK 1

Extracting ROMS/Kung Fu Superkicks - Pursuit of the Ninja (AKA Chuck Norris Superkicks) (1988) (Telegames) (6082 A145) (PAL).bin 18% OK

Extracting ROMS/Kung Fu Superkicks - Pursuit of the Ninja (AKA Chuck Norris Superkicks) (1988) (Telegames) (6082 A145).bin 18% OK

Extracting ROMS/Kung-Fu Master (1987) (Activision - Imagineering, Dan Kitchen, Garr y Kitchen) (AG-039-04) ~.bin 18% OK

Extracting ROMS/Kung-Fu Master (1987) (Activision - Imagineering, Dan Kitchen, Garr y Kitchen) (EAX-039-04B, EAX-039-04I) (PAL).bin 18% OK

Extracting ROMS/Kwibble (Quick Step! Beta) (1983) (Imagic, Dave Johnson) (720119-1 A, 03211) (Prototype).bin 18% OK

Extracting ROMS/Kyphus (1982) (Apollo, Tim Martin) (AP-2007) (Prototype) ~.bin
18% OK

Extracting ROMS/Labyrinth (AKA Phantom Tank) (1983) (Goliath - Hot Shot) (83-411) (PAL).bin 18% OK

Extracting ROMS/Labyrinth (AKA Maze Craze) (1983) (Quelle) (805.784 6) (PAL).bin
18% OK

Extracting ROMS/Labyrinth (Escape from the Mindmaster Beta) (1982) (5) (AR-4200) (Arcadia Corporation, Dennis Caswell) [a].bin 18% OK
 Extracting ROMS/Labyrinth (Escape from the Mindmaster Beta) (1982) (5) (AR-4200) (Arcadia Corporation, Dennis Caswell).bin 18% OK
 Extracting ROMS/Lady in Wading (1982) (PlayAround - JHM) (204).bin 1
 8% OK
 Extracting ROMS/Landung in der Normandie (AKA Commando Raid) (1983) (Quelle) (876.482 1) (PAL).bin 18% OK
 Extracting ROMS/Landungskommando (AKA Strategy X) (1983) (Quelle) (176.433 1) (PAL).bin 19% OK
 Extracting ROMS/Laser Base (AKA The End of the World) (Perry Rhodan-Serie) (1983) (ITT Family Games) (554-33 367) (PAL).bin 19% OK
 Extracting ROMS/Laser Blaser (AKA The End of the World) (4 Game in One) (1983) (Bit Corporation) (CP405) (PAL).bin 19% OK
 Extracting ROMS/Laser Blast (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 19% OK
 Extracting ROMS/Laser Blast (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 19% OK
 Extracting ROMS/Laser Blast (CCE).bin 1
 9% OK
 Extracting ROMS/Laser Blast (Hack) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 19% OK
 Extracting ROMS/Laser Blast (Lazer) (08-08-1980) (Activision, David Crane) (AG-008) (Prototype).bin 19% OK
 Extracting ROMS/Laser Blast (Lazer) (1981) (Activision, David Crane) (AG-008) ~.bin 19% OK
 Extracting ROMS/Laser Blast - Duell im Weltall (Lazer) (1981) (Activision, David Crane - Ariola) (EAG-008, PAG-008, EAG-008-04I - 711 008-720) (PAL).bin 1
 9% OK
 Extracting ROMS/Laser Gate (AKA Innerspace) (1983) (CCE) (C-860).bin 1
 9% OK
 Extracting ROMS/Laser Gates (AKA Innerspace) (1983) (Imagic, Dan Oliver) (720118-1 A, 03208) ~.bin 19% OK
 Extracting ROMS/Laser Gates (AKA Innerspace) (1983) (Imagic, Dan Oliver) (720118-2 A, 13208, EIX-007-04I) (PAL).bin 19% OK
 Extracting ROMS/Laser Gates (AKA Innerspace) (Fotomania).bin 1
 9% OK
 Extracting ROMS/Laser Gates (AKA Innerspace) (Unknown) (PAL).bin 1
 9% OK
 Extracting ROMS/Laser Volley - Laaser Voley (AKA Innerspace) (Zellers).bin 1
 19% OK
 Extracting ROMS/Laser-Loop (AKA Base Attack) (1983) (Dynamics) (PAL).bin 1
 9% OK
 Extracting ROMS/Lasercade (1983) (20th Century Fox Video Games - Videia, Lee Actor) (Prototype) ~.bin 19% OK
 Extracting ROMS/Last Starfighter, The (Universe) (Solaris Beta) (1984) (Atari, Douglas 'Solaris' Neubauer, Mimi Nyden) (CX26134) (Prototype).bin 19% OK
 Extracting ROMS/Lilly Adventure (1983) (Home Vision - Gem International Corporation - VDI) (VCS83117) (PAL) ~.bin 19% OK
 Extracting ROMS/Lilly Adventure (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 19% OK
 Extracting ROMS/Lilly Adventure (Unknown).bin 1
 9% OK
 Extracting ROMS/Lochjaw (1982) (Apollo - Games by Apollo, Steve Stringfellow) (AP-2005) ~.bin 19% OK
 Extracting ROMS/Lock 'n' Chase (1982) (M Network - INTV - APh Technological Consulting, Bruce Pedersen) (MT5663) ~.bin 19% OK
 Extracting ROMS/Lock 'n' Chase (1988) (Telegames) (PAL).bin 1
 9% OK
 Extracting ROMS/Lock 'n' Chase (Hack) (32 in 1) (Bit Corporation) (R320).bin 1
 19% OK
 Extracting ROMS/Lock 'n' Chase (Unknown) (PAL).bin 1
 9% OK
 Extracting ROMS/London Blitz (1983) (Avalon Hill, Jean Baer, Bill 'Rebecca Ann' Hei

neman, William O. Sheppard) (5002002) ~.bin 19% OK
 Extracting ROMS/Looping (1983) (Coleco - Individeo, Ed Temple) (2654) (Prototype) ~.bin 19% OK
 Extracting ROMS/Lord of the Rings, The - Journey to Rivendell (The Lord of the Rings I) (1983) (Parker Brothers, Mark Lesser) (PB5950) (Prototype) [a].bin 1 9% OK
 Extracting ROMS/Lord of the Rings, The - Journey to Rivendell (The Lord of the Rings I) (1983) (Parker Brothers, Mark Lesser) (PB5950) (Prototype) ~.bin 1 9% OK
 Extracting ROMS/Los Angeles 1984 Games (AKA Track and Field) (Track & Field Controller) (1984) (Atari - GCC, Jaques Hugon, Seth Lipkin) (CX26125) (Prototype) (PAL).bin 19% OK
 Extracting ROMS/Lost Luggage (Airport Mayhem) (1982) (Apollo - Games by Apollo, Larry Minor, Ernie Runyon, Ed Salvo) (AP-2004) [no opening scene] ~.bin 1 9% OK
 Extracting ROMS/Lost Luggage (Airport Mayhem) (1982) (Apollo - Games by Apollo, Larry Minor, Ernie Runyon, Ed Salvo) (AP-2004) ~.bin 19% OK
 Extracting ROMS/Lost Luggage - La valise piégée (Airport Mayhem) (1982) (Apollo - Games by Apollo, Larry Minor, Ernie Runyon, Ed Salvo - RCA Video Jeux) (AP-2004) (PAL).bin 19% OK
 Extracting ROMS/M.A.D. (1983) (Carrere Video - Western Technologies, John Hall - Teldec - Prism) (USC1012) (PAL).bin 19% OK
 Extracting ROMS/M.A.D. (M.A.D. - U.S. vs. U.S.S.R., Missile Intercept, Mutually Assured Destruction) (1983) (U.S. Games Corporation - Western Technologies, John Hall) (VC1012) ~.bin 19% OK
 Extracting ROMS/M.A.S.H (1983) (20th Century Fox Video Games, Frank Cohen, Douglas 'Dallas North' Neubauer) (11011) ~.bin 19% OK
 Extracting ROMS/M.A.S.H (1983) (20th Century Fox Video Games, Frank Cohen, Douglas 'Dallas North' Neubauer) (11111) (PAL).bin 19% OK
 Extracting ROMS/M.A.S.H (Hack) (Unknown) (PAL).bin 1 9% OK
 Extracting ROMS/M.A.S.H (Unknown) (PAL) [a].bin 1 9% OK
 Extracting ROMS/M.A.S.H (Unknown) (PAL).bin 1 9% OK
 Extracting ROMS/M.A.S.H (Unknown).bin 1 9% OK
 Extracting ROMS/Mafia (AKA Gangster Alley) (1983) (Rainbow Vision - Suntek) (SS-010) (PAL).bin 19% OK
 Extracting ROMS/MagiCard (Keyboard Controller) (1981) (Computer Magic - CommaVid, John Bronstein) (CM-001) ~.bin 19% OK
 Extracting ROMS/Malagai (1983) (Answer Software Corporation - TY Associates, Mike Wentz) (ASC1001) ~.bin 19% OK
 Extracting ROMS/Mangia' (1983) (Spectravideo) (SA-212) (PAL).bin 1 9% OK
 Extracting ROMS/Mangia' (1983) (Spectravideo) (SA-212) ~.bin 1 9% OK
 Extracting ROMS/Marauder (1982) (Tigervision, Rorke Weigandt - Teldec) (7-005 - 3.60004 VE) (PAL).bin 19% OK
 Extracting ROMS/Marauder (1982) (Tigervision, Rorke Weigandt) (7-005) ~.bin 19% OK
 Extracting ROMS/Marauder (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 19% OK
 Extracting ROMS/Mariana (AKA Seaquest) (1983) (Rainbow Vision - Suntek) (SS-017) (PAL).bin 19% OK
 Extracting ROMS/Marine Wars (1983) (Gakken) (011) (PAL).bin 1 9% OK
 Extracting ROMS/Marine Wars (1983) (Konami) (RC 102-X 02) ~.bin 1 9% OK
 Extracting ROMS/Marineflieger - River Raid II (AKA Seahawk) (1983) (Quelle - Otto Versand) (176.764 9 - 781644) (PAL).bin 19% OK
 Extracting ROMS/Mario Bros. (1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2697) ~.bin 19% OK
 Extracting ROMS/Mario Bros. (1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2697, CX269

7P) (PAL).bin 20% OK
 Extracting ROMS/Mario Bros. (Zirok).bin 2
 0% OK
 Extracting ROMS/Mario's Bros. (AKA Mario Bros.) (1983) (CCE) (C-1004).bin
 20% OK
 Extracting ROMS/Marspatrouille (AKA Gas Hog) (1983) (Quelle) (292.542 8) (PAL).bin
 20% OK
 Extracting ROMS/MASH (AKA M.A.S.H) (1983) (CCE) (C-859).bin 2
 0% OK
 Extracting ROMS/Master Builder (1983) (Spectravideo) (SA-210) ~.bin 2
 0% OK
 Extracting ROMS/Master Builder - Super Baumeister (1983) (Spectravideo - Quelle) (SA-210 - 413.582 8) (PAL).bin 20% OK
 Extracting ROMS/Masters of the Universe - The Power of He-Man (1983) (M Network - I NTV, Connie Goldman, Joe King, Patricia Lewis Du Long, Gerald Moore, Mike Sanders, J ossef Wagner) (MT4319) ~.bin 20% OK
 Extracting ROMS/Math Gran Prix (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 20% OK
 Extracting ROMS/Math Gran Prix (Math Game) (1982) (Atari, Suki Lee - Sears) (CX2658 - 49-75128) (Prototype).bin 20% OK
 Extracting ROMS/Math Gran Prix (Math Game) (1982) (Atari, Suki Lee - Sears) (CX2658 - 49-75128) ~.bin 20% OK
 Extracting ROMS/Math Gran Prix (Math Game) (1982) (Atari, Suki Lee) (CX2658) (PAL).bin 20% OK
 Extracting ROMS/Math Gran Prix (Unknown) (PAL).bin 2
 0% OK
 Extracting ROMS/Maze Craze (Unknown).bin 2
 0% OK
 Extracting ROMS/Maze Craze - A Game of Cops 'n Robbers (The Maze) (1980) (Atari, Richard Maurer) (CX2635, CX2635P) (PAL).bin 20% OK
 Extracting ROMS/Maze Craze - A Game of Cops 'n Robbers - Maze Mania - A Game of Cops 'n Robbers (The Maze) (1980) (Atari, Richard Maurer - Sears) (CX2635 - 49-75157) ~.bin 20% OK
 Extracting ROMS/McDonald's - Golden Arches Adventure (Big Mac) (06-06-1983) (Parker Brothers, Dave Engman, Isabel Garret) (Prototype) ~.bin 20% OK
 Extracting ROMS/Mega Force (1982) (20th Century Fox Video Games, Douglas 'Dallas North' Neubauer) (11005) ~.bin 20% OK
 Extracting ROMS/Mega Force (1982) (20th Century Fox Video Games, Douglas 'Dallas North' Neubauer) (11105) (PAL) [a].bin 20% OK
 Extracting ROMS/Mega Force (1982) (20th Century Fox Video Games, Douglas 'Dallas North' Neubauer) (11105) (PAL).bin 20% OK
 Extracting ROMS/Mega Force (Unknown).bin 2
 0% OK
 Extracting ROMS/Mega Funpak - Gorf, P. Patrol, Pacman, Skeet Shoot (HES) (PAL).bin 20% OK
 Extracting ROMS/MegaBoy (Dynacom) ~.bin 2
 0% OK
 Extracting ROMS/Megamania (1982) (Dynacom).bin 2
 0% OK
 Extracting ROMS/Megamania (1983) (CCE) (C-829).bin 2
 0% OK
 Extracting ROMS/Megamania (1983) (Dactari - Milmar).bin 2
 0% OK
 Extracting ROMS/Megamania (1983) (Digitel).bin 2
 0% OK
 Extracting ROMS/Megamania (Fotomania).bin 2
 0% OK
 Extracting ROMS/MegaMania (Unknown) (PAL) [a].bin 2
 0% OK
 Extracting ROMS/MegaMania (Unknown) (PAL).bin 2
 0% OK
 Extracting ROMS/MegaMania - A Space Nightmare (1982) (Activision, Steve Cartwright) (AX-017, AX-017-04) ~.bin 20% OK
 Extracting ROMS/MegaMania - A Space Nightmare - Ein Alptraum im Weltall (1982) (Act

ivision, Steve Cartwright - Ariola) (EAX-017, EAX-017-04I - 711 017-720) (PAL).bin
 20% OK
 Extracting ROMS/Mein Weg - My Way (AKA Challenge) (1983) (Quelle - Otto Versand) (6 86.561 2 - 781627) (PAL).bin 20% OK
 Extracting ROMS/Meltdown (Atom Smasher) (1983) (20th Century Fox Video Games - Vide a, David Ross) (11029) (Prototype) ~.bin 20% OK
 Extracting ROMS/Meteor Defense (AKA Astrowar) (1983) (ITT Family Games) (554-33 39 1) (PAL).bin 20% OK
 Extracting ROMS/Meteoroids (Suicide Mission Beta) (1982) (Arcadia Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) (Prototype).bin 20% OK
 Extracting ROMS/Mickey (AKA Sorcerer's Apprentice) (1984) (Digivision).bin
 20% OK
 Extracting ROMS/Midnight Magic (Pinball Wizard) (1986) (Atari, Glenn Axworthy) (CX2 6129) (PAL).bin 20% OK
 Extracting ROMS/Midnight Magic (Pinball Wizard) (1986) (Atari, Glenn Axworthy) (CX2 6129) ~.bin 20% OK
 Extracting ROMS/Millipede (01-04-1984) (Atari, Jerome Domurat, Andrew Fuchs, Dave Staugas, Robert Vieira) (CX26118) (Prototype).bin 20% OK
 Extracting ROMS/Millipede (1984) (Atari - GCC) (CX26118) (Prototype) (PAL).bin
 20% OK
 Extracting ROMS/Millipede (1984) (Atari, Jerome Domurat, Andrew Fuchs, Dave Staugas, Robert Vieira) (CX26118) (Prototype).bin 21% OK
 Extracting ROMS/Millipede (1984) (Atari, Jerome Domurat, Andrew Fuchs, Dave Staugas, Robert Vieira) (CX26118) ~.bin 21% OK
 Extracting ROMS/Millipede (1984) (Atari, Jerome Domurat, Andrew Fuchs, Dave Staugas, Robert Vieira) (CX26118, CX26118P) (PAL).bin 21% OK
 Extracting ROMS/Mind Maze (Mind Race) (Mindlink Controller) (10-10-1983) (Atari, Peter C. Niday, Gary Shannon, Howard Scott Warshaw) (Prototype) ~.bin 2
 1% OK
 Extracting ROMS/Miner 2049er - Starring Bounty Bob (1983) (Tigervision - Teldec) (7 -008 - 3.6006 VG) (PAL).bin 21% OK
 Extracting ROMS/Miner 2049er - Starring Bounty Bob (1983) (Tigervision) (7-008) (Prototype).bin 21% OK
 Extracting ROMS/Miner 2049er - Starring Bounty Bob (1983) (Tigervision) (7-008) [fixed] ~.bin 21% OK
 Extracting ROMS/Miner 2049er - Starring Bounty Bob (1983) (Tigervision) (7-008) ~.bin 21% OK
 Extracting ROMS/Miner 2049er Volume II (1983) (Tigervision - Teldec) (7-011 - 3.600 15 VG) (PAL).bin 21% OK
 Extracting ROMS/Miner 2049er Volume II (1983) (Tigervision) (7-011) ~.bin 21% OK
 Extracting ROMS/Mines of Minos (1982) (CommaVid, Irwin Gaines) (CM-005) ~.bin
 21% OK
 Extracting ROMS/Mines of Minos (Unknown) (PAL).bin 2
 1% OK
 Extracting ROMS/Mines of Minos - Im Labyrinth des Roboters (1982) (CommaVid, Irwin Gaines - Ariola) (CM-005 - 712 005-720) (PAL).bin 21% OK
 Extracting ROMS/Miniature Golf (1979) (Atari, Tom Reuterdahl) (CX2626, CX2626P) (PAL).bin 21% OK
 Extracting ROMS/Miniature Golf - Arcade Golf (1979) (Atari, Tom Reuterdahl - Sears) (CX2626 - 6-99829, 49-75116) ~.bin 21% OK
 Extracting ROMS/Miniaturer Golf (AKA Miniature Golf) (32 in 1) (1988) (Atari, Tom R euterdahl) (CX26163P) (PAL).bin 21% OK
 Extracting ROMS/Miss Pack Man (AKA Ms. Pac-Man) (Video Game Program) (PAL).bin
 21% OK
 Extracting ROMS/Miss Piggy's Wedding (06-24-1983) (Atari, Dave Joly, Gary Shannon) (CX26113) (Prototype) ~.bin 21% OK
 Extracting ROMS/Miss Piggy's Wedding (1983) (Atari, Dave Joly, Gary Shannon) (CX261 13) (Prototype) (4K) [a].bin 21% OK
 Extracting ROMS/Miss Piggy's Wedding (1983) (Atari, Dave Joly, Gary Shannon) (CX261 13) (Prototype) (4K).bin 21% OK
 Extracting ROMS/Missile Command (1981) (Atari, Rob Fulop - Sears) (CX2638 - 49-7516 6) (Prototype).bin 21% OK
 Extracting ROMS/Missile Command (1981) (Atari, Rob Fulop - Sears) (CX2638 - 49-7516

```

6) [no initials] ~.bin          21%      OK
Extracting ROMS/Missile Command (1981) (Atari, Rob Fulop - Sears) (CX2638 - 49-7516
6) ~.bin          21%      OK
Extracting ROMS/Missile Command (1981) (Atari, Rob Fulop) (CX2638) (PAL).bin
21%      OK
Extracting ROMS/Missile Command (Hack) (32 in 1) (Bit Corporation) (R320).bin
21%      OK
Extracting ROMS/Missile Command (Hack) (Unknown) (PAL).bin          2
1%      OK
Extracting ROMS/Missile Command (Unknown) (PAL).bin          2
1%      OK
Extracting ROMS/Missile Control (1983) (Video Gems) (VG-01) (PAL) ~.bin          2
1%      OK
Extracting ROMS/Missile War (AKA Astrowar) (1983) (Goliath - Hot Shot) (83-312) (PA
L).bin          21%      OK
Extracting ROMS/Mission 3,000 A.D. (1983) (Bit Corporation) (PG207).bin          2
1%      OK
Extracting ROMS/Mission 3,000 A.D. (Unknown) (PAL) [a].bin          2
1%      OK
Extracting ROMS/Mission 3,000 A.D. (Unknown) (PAL).bin          2
1%      OK
Extracting ROMS/Mission 3,000 A.D. - Mission 3000 (1983) (Bit Corporation) (PG207)
(PAL) [demonstration cartridge] ~.bin          21%      OK
Extracting ROMS/Mission 3,000 A.D. - Mission 3000 (1983) (Bit Corporation) (PG207)
(~.bin          21%      OK
Extracting ROMS/Mission Survive (1983) (Video Gems) (VG-04) (PAL) [louder sounds]
~.bin          21%      OK
Extracting ROMS/Mission Survive (1983) (Video Gems) (VG-04) (PAL) ~.bin          2
1%      OK
Extracting ROMS/Mysterious Thief, A (AKA A Mysterious Thief) (1983) (CCE) (C-839)
[a].bin          21%      OK
Extracting ROMS/Mysterious Thief, A (AKA A Mysterious Thief) (1983) (CCE) (C-839).b
in          21%      OK
Extracting ROMS/Mogul Maniac (Joyboard) (1983) (Amiga - Video Soft) (3120) ~.bin
21%      OK
Extracting ROMS/Mole Hunter (AKA Topy) (1983) (Suntek) (SS-023) (PAL).bin
21%      OK
Extracting ROMS/Monster aus dem All (AKA Sky Alien) (1983) (Video Game - Ariola) (S
P-206) (PAL).bin          21%      OK
Extracting ROMS/Monster Cise (Kid's Controller) (1984) (Atari - CCW) (CX26131) (Pro
totype) ~.bin          21%      OK
Extracting ROMS/Montezuma's Revenge - Featuring Panama Joe (1984) (Parker Brothers
- JWDA, Henry Will IV) (PB5760) ~.bin          21%      OK
Extracting ROMS/Moon Patrol (05-12-1983) (Atari - GCC, Mark Ackerman, Noelia Alito)
(CX2692) (Prototype).bin          21%      OK
Extracting ROMS/Moon Patrol (06-15-1983) (Atari - GCC, Mark Ackerman, Noelia Alito)
(CX2692) (Prototype).bin          21%      OK
Extracting ROMS/Moon Patrol (07-04-1983) (Atari - GCC, Mark Ackerman, Noelia Alito)
(CX2692) (Prototype).bin          21%      OK
Extracting ROMS/Moon Patrol (07-26-1983) (Atari - GCC, Mark Ackerman, Noelia Alito)
(CX2692) (Prototype).bin          21%      OK
Extracting ROMS/Moon Patrol (07-31-1983) (Atari - GCC, Mark Ackerman, Noelia Alito)
(CX2692) (Prototype).bin          21%      OK
Extracting ROMS/Moon Patrol (1983) (Atari - GCC, Mark Ackerman, Noelia Alito) (CX26
92) ~.bin          21%      OK
Extracting ROMS/Moon Patrol (1983) (Atari - GCC, Mark Ackerman, Noelia Alito) (CX26
92, CX2692P) (PAL).bin          21%      OK
Extracting ROMS/Moon Patrol (1983) (CCE) (C-1006).bin          2
2%      OK
Extracting ROMS/Moon Patrol (Canal 3 - Intellivision) (C 3004).bin          2
2%      OK
Extracting ROMS/Moon Patrol (Tron).bin          2
2%      OK
Extracting ROMS/Moonsweeper (1983) (Imagic, Bob Smith) (720114-1A, 03207, IZ-001-0

```

```

4) ~.bin      22%      OK
Extracting ROMS/Moonsweeper (1983) (Imagic, Bob Smith) (720114-2A, 13207, EIZ-001-0
4I) (PAL).bin      22%      OK
Extracting ROMS/Moonsweeper (1988) (Activision) (AIZ-001).bin          2
2%      OK
Extracting ROMS/Morse Code Tutor (1979) (Atari, Brad Stewart) ~.bin      2
2%      OK
Extracting ROMS/Motocross (AKA Madcycle) (1983) (Suntek) (SS-022) (PAL).bin
22%      OK
Extracting ROMS/Motocross (AKA Motocross Racer) (Joystik).bin          2
2%      OK
Extracting ROMS/Motocross - Motorcross - Motocross (AKA Madcycle) (1983) (Quelle -
Otto Versand) (719.383 2 - 649635, 781393, 781784, 986404) (PAL).bin      2
2%      OK
Extracting ROMS/Motocross Racer (1983) (Xonox - K-Tel Software - Product Guild, Ant
hony R. Henderson) (99008, 6240) ~.bin      22%      OK
Extracting ROMS/MotoRodeo (Motor Olympics, Motor Rodeo) (1991) (Atari - Axlon, Stev
e DeFrisco) (CX26171) (PAL).bin      22%      OK
Extracting ROMS/MotoRodeo (Motor Olympics, Motor Rodeo) (1991) (Atari - Axlon, Stev
e DeFrisco) (CX26171) ~.bin      22%      OK
Extracting ROMS/Mountain King (1983) (CBS Electronics - E.F. Dreyer - VSS, Ed Salv
o) (4L 2738 0000) ~.bin      22%      OK
Extracting ROMS/Mountain Man (AKA Ski Hunt) (1983) (ITT Family Games) (554-37 737)
(PAL).bin      22%      OK
Extracting ROMS/Mouse Trap (1982) (Coleco - JWDA, Sylvia Day, Todd Marshall, Robin
McDaniel, Henry Will IV) (2459) ~.bin      22%      OK
Extracting ROMS/Mouse Trap (1983) (CBS Electronics - JWDA, Sylvia Day, Todd Marshal
l, Robin McDaniel, Henry Will IV) (4L1818, 4L1819, 4L1820, 4L1821) (PAL).bin
22%      OK
Extracting ROMS/Mouse Trap (Mouse Attack) (1987) (Atari) (CX26146).bin          2
2%      OK
Extracting ROMS/Mr. Do! (1983) (CBS Electronics - Individeo, Ed English) (4L4478)
(PAL).bin      22%      OK
Extracting ROMS/Mr. Do! (1983) (Coleco - Individeo, Ed English) (2656) ~.bin
22%      OK
Extracting ROMS/Mr. Do!'s Castle (03-12-84) (Parker Brothers) (PB5820) (Prototype)
(4K).bin      22%      OK
Extracting ROMS/Mr. Do!'s Castle (1984) (Parker Brothers) (PB5820) (Prototype).bin
22%      OK
Extracting ROMS/Mr. Do!'s Castle (1984) (Parker Brothers) (PB5820) ~.bin          2
2%      OK
Extracting ROMS/Mr. Postman (1983) (Bit Corporation) (PG209).bin          2
2%      OK
Extracting ROMS/Mr. Postman (Digitel).bin          2
2%      OK
Extracting ROMS/Mr. Postman (Fotomania).bin          2
2%      OK
Extracting ROMS/Mr. Postman (Unknown).bin          2
2%      OK
Extracting ROMS/Mr. Postman - Der Postmann (1983) (Bit Corporation) (PG209) (PAL)
~.bin      22%      OK
Extracting ROMS/Mr. Postman - O Carteiro (1983) (CCE) (C-801).bin          2
2%      OK
Extracting ROMS/Ms Pac-Man (AKA Ms. Pac-Man) (1986) (Artkaris Software) (PAL).bin
22%      OK
Extracting ROMS/Ms. Pac-Man (1982) (Atari - GCC, Mark Ackerman, Glenn Parker) (CX26
75) (Prototype).bin      22%      OK
Extracting ROMS/Ms. Pac-Man (1983) (Atari - GCC, Mark Ackerman, Glenn Parker) (CX26
75) ~.bin      22%      OK
Extracting ROMS/Ms. Pac-Man (1983) (Atari - GCC, Mark Ackerman, Glenn Parker) (CX26
75, CX2675P) (PAL).bin      22%      OK
Extracting ROMS/Ms. Pac-Man (CCE).bin          2
2%      OK
Extracting ROMS/Music Demo (JWDA, Todd Marshall) ~.bin          2

```

```

2%      OK
Extracting ROMS/Music Machine, The (Paddle) (1983) (Christian Software Development
- HomeComputer Software, Dan Schafer, Glenn Stohel, Jon Tedesco - Sparrow) (GCG 100
T, GCG 1001T) ~.bin      22%      OK
Extracting ROMS/My Golf (1990) (HES - Imagineering, David Lubar) (535) (PAL) [fixe
d] ~.bin      22%      OK
Extracting ROMS/My Golf (1990) (HES - Imagineering, David Lubar) (535) (PAL) ~.bin
22%      OK
Extracting ROMS/My Golf (CCE) (PAL).bin      2
2%      OK
Extracting ROMS/Mysterious Thief, A (1983) (ZiMAG - Emag - Vidco) (GN-070) (Prototy
pe) ~.bin      22%      OK
Extracting ROMS/Mysterious Thief, A (Unknown).bin      2
2%      OK
Extracting ROMS/Name This Game (1983) (Digitel).bin      2
2%      OK
Extracting ROMS/Name This Game (Guardians of Treasure, Octopussy) (1983) (U.S. Game
s Corporation - JWDA, Roger Booth, Sylvia Day, Ron Dubren, Todd Marshall, Robin McDani
el, Wes Trager, Henry Will IV) (VC1007) ~.bin      22%      OK
Extracting ROMS/Name This Game (Hack) (32 in 1) (Bit Corporation) (R320).bin
22%      OK
Extracting ROMS/Name This Game (Hack) (Unknown) (PAL).bin      2
3%      OK
Extracting ROMS/Name This Game (Unknown) (PAL).bin      2
3%      OK
Extracting ROMS/Netmaker (AKA Amidar) (1983) (Rainbow Vision - Suntek) (SS-006) (PA
L).bin      23%      OK
Extracting ROMS/NFL Football (AKA Football) (32 in 1) (1988) (Atari, Bob Whitehead)
(CX26163P) (PAL).bin      23%      OK
Extracting ROMS/Night Driver (Paddle) (1980) (Atari, Rob Fulop - Sears) (CX2633 - 4
9-75119) ~.bin      23%      OK
Extracting ROMS/Night Driver (Paddle) (1980) (Atari, Rob Fulop) (CX2633, CX2633P)
(PAL).bin      23%      OK
Extracting ROMS/Night Stalker (AKA Dark Cavern) (1988) (Telegames) (PAL).bin
23%      OK
Extracting ROMS/Nightmare (1983) (Sancho - Tang's Electronic Co.) (TEC004) (PAL) ~.
bin      23%      OK
Extracting ROMS/Nightmare (1983) (Sancho - Tang's Electronic Co.) (TEC004).bin
23%      OK
Extracting ROMS/Nightmare (CCE).bin      2
3%      OK
Extracting ROMS/No Escape! (Escape from Argos) (1983) (Imagic, Michael Greene) (720
055-1A, IA3312) ~.bin      23%      OK
Extracting ROMS/No Escape! (Escape from Argos) (1983) (Imagic, Michael Greene) (720
055-2A, IA3312P) (PAL).bin      23%      OK
Extracting ROMS/Nuts (1983) (TechnoVision - Video Technology) (TVS1001) (PAL) ~.bin
23%      OK
Extracting ROMS/Nuts (Unknown) (PAL).bin      2
3%      OK
Extracting ROMS/Nuts (Unknown).bin      2
3%      OK
Extracting ROMS/Obelix (1984) (Atari, Andrew Fuchs, Jeffrey Gusman, Dave Joly, Suki
Lee) (CX26117) (PAL).bin      23%      OK
Extracting ROMS/Obelix (1984) (Atari, Andrew Fuchs, Jeffrey Gusman, Dave Joly, Suki
Lee) (CX26117) ~.bin      23%      OK
Extracting ROMS/Ocean City (AKA Atlantis) (Funvision - Fund. International Co.).bin
23%      OK
Extracting ROMS/Ocean City Defender (AKA Atlantis) (Zellers).bin      2
3%      OK
Extracting ROMS/Octopus (AKA Name This Game) (1983) (Carrere Video - JWDA, Roger Bo
oth, Sylvia Day, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV - Teldec -
Prism) (USC1007) (PAL).bin      23%      OK
Extracting ROMS/Off the Wall (Bizarre Breakout, Peasant King, Zip 'n' Zap) (1989)
(Atari - Axlon, John Vifian) (CX26168) (PAL).bin      23%      OK

```

Extracting ROMS/Off the Wall (Bizarre Breakout, Peasant King, Zip 'n' Zap) (1989) (Atari - Axlon, John Vifian) (CX26168) ~.bin 23% OK
 Extracting ROMS/Off Your Rocker (Joyboard) (1983) (Amiga - Video Soft, Frank Ellis) (3130) (Prototype) ~.bin 23% OK
 Extracting ROMS/Official Frogger, The (1983) (Starpath Corporation, Stephen H. Landrum) (9) (AR-4105) (PAL).bin 23% OK
 Extracting ROMS/Official Frogger, The (1983) (Starpath Corporation, Stephen H. Landrum) (9) (AR-4105) ~.bin 23% OK
 Extracting ROMS/Official Frogger, The (Preview) (1983) (Starpath Corporation, Stephen H. Landrum) (9) (AR-4105).bin 23% OK
 Extracting ROMS/Oink! (1983) (Activision, Mike Lorenzen) (AX-023) ~.bin 2 3% OK
 Extracting ROMS/Oink! (CCE).bin 2 3% OK
 Extracting ROMS/Oink! (Unknown) (PAL).bin 2 3% OK
 Extracting ROMS/Oink! (Unknown).bin 2 3% OK
 Extracting ROMS/Oink! - Das Schweinchen und der Wolf (1983) (Activision, Mike Lorenzen - Ariola) (EAX-023 - 711 023-720) (PAL).bin 23% OK
 Extracting ROMS/Omega Race (Booster Grip) (1983) (CBS Electronics, Alex Nevelson) (4L 2737 0000) (Prototype).bin 23% OK
 Extracting ROMS/Omega Race (Booster Grip) (1983) (CBS Electronics, Alex Nevelson) (4L 2737 0000) ~.bin 23% OK
 Extracting ROMS/Open Sesame (AKA Open, Sesame!) (1982) (Puzzy - Bit Corporation) (PG204) (PAL).bin 23% OK
 Extracting ROMS/Open Sesame (AKA Open, Sesame!) (1983) (Goliath) (5) (PAL).bin 23% OK
 Extracting ROMS/Open Sesame (AKA Open, Sesame!) (4 Game in One) (1983) (Bit Corporation) (PGP204) (PAL).bin 23% OK
 Extracting ROMS/Open, Sesame! (1982) (Bit Corporation) (PG204).bin 2 3% OK
 Extracting ROMS/Open, Sesame! - Abre-te, Sesamo! (1983) (CCE) (C-804).bin 23% OK
 Extracting ROMS/Open, Sesame! - Sesam, Oeffne Dich (1982) (Bit Corporation) (PG204) (PAL) ~.bin 23% OK
 Extracting ROMS/Oscar's Trash Race (Kid's Controller) (03-30-1983) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) (Prototype).bin 23% OK
 Extracting ROMS/Oscar's Trash Race (Kid's Controller) (10-20-1982) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) (Prototype).bin 23% OK
 Extracting ROMS/Oscar's Trash Race (Kid's Controller) (12-03-1982) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) (Prototype).bin 23% OK
 Extracting ROMS/Oscar's Trash Race (Kid's Controller) (1984) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) (PAL).bin 23% OK
 Extracting ROMS/Oscar's Trash Race (Kid's Controller) (1984) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) ~.bin 23% OK
 Extracting ROMS/Othello (1981) (Atari, Ed Logg, Carol Shaw - Sears) (CX2639 - 49-75 162) [no grid markers] ~.bin 23% OK
 Extracting ROMS/Othello (1981) (Atari, Ed Logg, Carol Shaw - Sears) (CX2639 - 49-75 162) ~.bin 23% OK
 Extracting ROMS/Othello (1981) (Atari, Ed Logg, Carol Shaw) (CX2639, CX2639P) (PAL) [no grid markers].bin 23% OK
 Extracting ROMS/Othello (1981) (Atari, Ed Logg, Carol Shaw) (CX2639, CX2639P) (PAL).bin 23% OK
 Extracting ROMS/Othello (32 in 1) (Bit Corporation) (R320).bin 2 3% OK
 Extracting ROMS/Out of Control (1983) (Avalon Hill, Jean Baer, Bill 'Rebecca Ann' Heineman, Jim Jacob) (5005002) ~.bin 23% OK
 Extracting ROMS/Outlaw (1978) (Atari, David Crane) (CX2605, CX2605P) (PAL).bin 23% OK

Extracting ROMS/Outlaw (32 in 1) (1988) (Atari, David Crane) (CX26163P) (PAL).bin
23% OK

Extracting ROMS/Outlaw - Gunslinger (1978) (Atari, David Crane - Sears) (CX2605 - 6
-99822, 49-75109) ~.bin 23% OK

Extracting ROMS/Overkill (AKA Seahawk) (1983) (Goliath - Hot Shot) (83-114) (PAL).b
in 23% OK

Extracting ROMS/Pac Kong (AKA Inca Gold) (1983) (Goliath - Hot Shot) (83-414) (PA
L).bin 23% OK

Extracting ROMS/Pac Kong (AKA Inca Gold) (Funvision - Fund. International Co.) (PA
L).bin 23% OK

Extracting ROMS/Pac Kong (AKA Inca Gold) (Unknown) [a].bin 2
3% OK

Extracting ROMS/Pac Kong (AKA Inca Gold) (Unknown).bin 2
3% OK

Extracting ROMS/Pac Man (AKA Pac-Man) (1983) (CCE) (C-812) [a].bin 2
3% OK

Extracting ROMS/Pac Man (AKA Pac-Man) (1983) (CCE) (C-812).bin 2
4% OK

Extracting ROMS/Pac Man (AKA Pac-Man) (1983) (Digitel).bin 2
4% OK

Extracting ROMS/Pac-Kong (AKA Inca Gold) (1983) (Quelle) (219.292 0) (PAL).bin
24% OK

Extracting ROMS/Pac-Kong (AKA Inca Gold) (1983) (Rainbow Vision - Suntek) (SS-003)
(PAL).bin 24% OK

Extracting ROMS/Pac-Man (1982) (Atari, Tod Frye - Sears) (CX2646 - 49-75185) ~.bin
24% OK

Extracting ROMS/Pac-Man (1982) (Atari, Tod Frye) (CX2646) (PAL).bin 2
4% OK

Extracting ROMS/Pac-Man (Fotomania).bin 2
4% OK

Extracting ROMS/Pac-Man (Hack) (Unknown) (PAL).bin 2
4% OK

Extracting ROMS/Panda (Quest) (AKA Panda Chase) (1983) (Suntek) (SS-035) (PAL).bin
24% OK

Extracting ROMS/Panda Chase (Penda Chase) (1983) (Home Vision - Gem International C
orporation - VDI) (VCS83105) (PAL) ~.bin 24% OK

Extracting ROMS/Panda Chase (Unknown) (PAL).bin 2
4% OK

Extracting ROMS/Parachute (1983) (Home Vision - Gem International Corporation - VD
I) (VCS83123) (PAL) ~.bin 24% OK

Extracting ROMS/Party Mix (Preview) (1983) (Starpath Corporation, Dennis Caswell)
(10) (AR-4302) (PAL).bin 24% OK

Extracting ROMS/Party Mix (Preview) (1983) (Starpath Corporation, Dennis Caswell)
(10) (AR-4302).bin 24% OK

Extracting ROMS/Party Mix - Bop a Buggy (1 of 3) (Paddle) (1983) (Starpath Corporat
ion, Dennis Caswell) (10) (AR-4302) (PAL).bin 24% OK

Extracting ROMS/Party Mix - Bop a Buggy (1 of 3) (Paddle) (1983) (Starpath Corporat
ion, Dennis Caswell) (10) (AR-4302).bin 24% OK

Extracting ROMS/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Lin
e, Handcar (Paddle) (1983) (Starpath Corporation, Dennis Caswell) (10) (AR-4302) (PA
L).bin 24% OK

Extracting ROMS/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Lin
e, Handcar (Paddle) (1983) (Starpath Corporation, Dennis Caswell) (10) (AR-4302) ~.b
in 24% OK

Extracting ROMS/Party Mix - Down on the Line, Handcar (3 of 3) (Paddle) (1983) (Sta
rpath Corporation, Dennis Caswell) (10) (AR-4302) (PAL).bin 24% OK

Extracting ROMS/Party Mix - Down on the Line, Handcar (3 of 3) (Paddle) (1983) (Sta
rpath Corporation, Dennis Caswell) (10) (AR-4302).bin 24% OK

Extracting ROMS/Party Mix - Tug of War, Wizard's Keep (2 of 3) (Paddle) (1983) (Sta
rpath Corporation, Dennis Caswell) (10) (AR-4302) (PAL).bin 24% OK

Extracting ROMS/Party Mix - Tug of War, Wizard's Keep (2 of 3) (Paddle) (1983) (Sta
rpath Corporation, Dennis Caswell) (10) (AR-4302).bin 24% OK

Extracting ROMS/Peek-A-Boo (Dr. Salk) (Kid's Controller) (1984) (Atari, Dr. Lee Sal
k) (CX26135) (Prototype) ~.bin 24% OK

Extracting ROMS/Pega Ladrão (AKA Keystone Kapers) (Dismac).bin	2
4% OK	
Extracting ROMS/Pelé's Soccer - Pelé's Championship Soccer (AKA Championship Soccer) (1981) (Atari, Steve Wright) (CX2616) (PAL).bin	24% OK
Extracting ROMS/Pelé's Soccer - Pelé's Championship Soccer (AKA Championship Soccer) (1981) (Atari, Steve Wright) (CX2616).bin	24% OK
Extracting ROMS/Pengo (1983) (Atari, Andrew Fuchs, Courtney Granner, Jeffrey Gusman, Mark R. Hahn) (CX2690) (Prototype).bin	24% OK
Extracting ROMS/Pengo (1984) (Atari, Andrew Fuchs, Courtney Granner, Jeffrey Gusman, Mark R. Hahn) (CX2690) (PAL).bin	24% OK
Extracting ROMS/Pengo (1984) (Atari, Andrew Fuchs, Courtney Granner, Jeffrey Gusman, Mark R. Hahn) (CX2690) ~.bin	24% OK
Extracting ROMS/Pepsi Invaders - Coke Wins (Coca-Cola, Coke & Pepsi) (1983) (Atari, Richard Maurer, Christopher H. Omarzu - Coca Cola).bin	24% OK
Extracting ROMS/Pete Rose Baseball (1988) (Absolute Entertainment, Alex DeMeo) (AG-045-04, AK-045-04) ~.bin	24% OK
Extracting ROMS/Pete Rose Baseball (HES - Absolute Entertainment) (PAL).bin	
24% OK	
Extracting ROMS/Peter Penguin (AKA Frisco) (Pumuckl-Serie) (1983) (ITT Family Games) (554-37 338) (PAL).bin	24% OK
Extracting ROMS/Phantom Tank (1982) (Bit Corporation) (PG203).bin	2
4% OK	
Extracting ROMS/Phantom Tank (1982) (Puzzy - Bit Corporation) (PG203) (PAL).bin	24% OK
Extracting ROMS/Phantom Tank (1983) (Goliath) (3) (PAL).bin	2
4% OK	
Extracting ROMS/Phantom Tank (Unknown) (PAL).bin	2
4% OK	
Extracting ROMS/Phantom Tank - Phantom-Panzer (1982) (Bit Corporation) (PG203) (PAL) ~.bin	24% OK
Extracting ROMS/Phantom Tank - Tanque Fantasma (1983) (CCE) (C-808) (PAL).bin	
24% OK	
Extracting ROMS/Phantom UFO (AKA Spider Fighter) (4 Game in One) (1983) (Bit Corporation) (PGP212) (PAL).bin	24% OK
Extracting ROMS/Phantompanzer II (AKA Thunderground) (1983) (Quelle) (343.273 9) (PAL).bin	24% OK
Extracting ROMS/Phantom Tank (AKA Phantom Tank) (Digivision).bin	2
4% OK	
Extracting ROMS/Pharaoh's Curse (1983) (TechnoVision - Video Technology) (TVS1003) (PAL) ~.bin	24% OK
Extracting ROMS/Pharaoh's Curse (Unknown) (PAL).bin	2
4% OK	
Extracting ROMS/Pharaoh's Curse (Unknown).bin	2
4% OK	
Extracting ROMS/Phaser Patrol (1982) (Arcadia Corporation, Dennis Caswell) (1) (AR-4000, AR-4100) (Prototype) [a].bin	24% OK
Extracting ROMS/Phaser Patrol (1982) (Arcadia Corporation, Dennis Caswell) (1) (AR-4000, AR-4100) (Prototype).bin	24% OK
Extracting ROMS/Phaser Patrol (1982) (Arcadia Corporation, Dennis Caswell) (1) (AR-4000, AR-4100) ~.bin	25% OK
Extracting ROMS/Phaser Patrol (1982) (Starpad Corporation, Dennis Caswell) (1) (AR-4000, AR-4100) (PAL).bin	25% OK
Extracting ROMS/Philly Flasher (AKA Beat 'Em & Eat 'Em) (Paddle) (1982) (PlayAround - JHM) (201).bin	25% OK
Extracting ROMS/Phoenix (1983) (Atari - GCC, Mike Feinstein, John Mracek) (CX2673) ~.bin	25% OK
Extracting ROMS/Phoenix (1983) (Atari - GCC, Mike Feinstein, John Mracek) (CX2673, CX2673P) (PAL).bin	25% OK
Extracting ROMS/Phoenix (1983) (CCE) (C-1012).bin	2
5% OK	
Extracting ROMS/Phoenix (1986) (Artkaris Software) (PAL).bin	2
5% OK	
Extracting ROMS/Phoenix (Unknown).bin	2
5% OK	

Extracting ROMS/Phoenix (Zirok).bin	2
5% OK	
Extracting ROMS/Pick 'n' Pile (1990) (Salu - Ubi Soft, Dennis M. Kiss) (460673) (PA L) ~.bin 25% OK	
Extracting ROMS/Pick Up (1983) (20th Century Fox Video Games, Mark Klein) (11034) (Prototype) ~.bin 25% OK	
Extracting ROMS/Picnic (Catch the Fly) (Paddle) (1983) (U.S. Games Corporation - Western Technologies, Jeff Corsiglia, David Johnson, Tom Sloper) (VC2004) ~.bin 25% OK	
Extracting ROMS/Picnic (Paddle) (1983) (Carrere Video - Western Technologies, Jeff Corsiglia, David Johnson, Tom Sloper - Teldec - Prism) (USC2004) (PAL).bin 25% OK	
Extracting ROMS/Piece o' Cake (Bakery) (Paddle) (1983) (U.S. Games Corporation - Western Technologies) (VC2005) ~.bin 25% OK	
Extracting ROMS/Pigs in Space - Starring Miss Piggy (1983) (Atari, Bill Aspromonte, Dave Joly, John Russell, Michael Sierchio, Robert Zdybel) (CX26114) (PAL).bin 25% OK	
Extracting ROMS/Pigs in Space - Starring Miss Piggy (1983) (Atari, Bill Aspromonte, Dave Joly, John Russell, Michael Sierchio, Robert Zdybel) (CX26114) (Prototype).bin 25% OK	
Extracting ROMS/Pigs in Space - Starring Miss Piggy (1983) (Atari, Bill Aspromonte, Dave Joly, John Russell, Michael Sierchio, Robert Zdybel) (CX26114) ~.bin 25% OK	2
Extracting ROMS/Pinball (AKA Video Pinball) (Zellers).bin	2
5% OK	
Extracting ROMS/Pitfall (AKA Pitfall!) (1983) (CCE) (C-813).bin	2
5% OK	
Extracting ROMS/Pitfall (AKA Pitfall!) (1984) (Supergame) (32).bin	2
5% OK	
Extracting ROMS/Pitfall (AKA Pitfall!) (Fotomania).bin	2
5% OK	
Extracting ROMS/Pitfall (AKA Pitfall!) (Genus).bin	2
5% OK	
Extracting ROMS/Pitfall II - Lost Caverns (1984) (Activision, Steve Cartwright, David Crane - Ariola) (EAB-035-04 - 711 035-721) (PAL).bin 25% OK	
Extracting ROMS/Pitfall II - Lost Caverns (1984) (Activision, Steve Cartwright, David Crane) (AB-035-04) ~.bin 25% OK	
Extracting ROMS/Pitfall! - Abenteuer im Urwald (Jungle Runner) (1982) (Activision, David Crane - Ariola) (EAX-018, EAX-018-04B, EAX-018-04I - 711 018-725) (PAL).bin 25% OK	
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Jungle Runner) (03-18-1983) (Activision, David Crane) (AX-018, AX-018-04) (Prototype).bin	2
5% OK	
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Jungle Runner) (1981) (Activision, David Crane) (AX-018, AX-018-04) (Prototype).bin	25% OK
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Jungle Runner) (1982) (Activision, David Crane) (AX-018, AX-018-04) (Prototype).bin	25% OK
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Jungle Runner) (1982) (Activision, David Crane) (AX-018, AX-018-04) ~.bin	25% OK
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Unknown) (PAL).bin 25% OK	
Extracting ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Unknown).bin 25% OK	
Extracting ROMS/Pizza Chef (1983) (CCE) (C-837).bin	2
5% OK	
Extracting ROMS/Pizza Chef - Pizza Time (1983) (ZiMAG - Emag - Vidco) (713-111 - GN-050) (Prototype) ~.bin 25% OK	
Extracting ROMS/Planet of the Apes (1983) (20th Century Fox Video Games, John W.S. Marvin) (Prototype) ~.bin 25% OK	
Extracting ROMS/Planet Patrol (1982) (Play Video) (PAL).bin	2
5% OK	
Extracting ROMS/Planet Patrol (1982) (Spectravision - Spectravideo) (SA-202) ~.bin 25% OK	
Extracting ROMS/Planet Patrol (1983) (CCE) (C-830) [a].bin	2

5% OK
 Extracting ROMS/Planet Patrol (1983) (CCE) (C-830).bin 2
 5% OK
 Extracting ROMS/Planet Patrol (Digivision) (PAL).bin 2
 5% OK
 Extracting ROMS/Planet Patrol (Fotomania).bin 2
 5% OK
 Extracting ROMS/Planet Patrol (Unknown) (PAL) [a].bin 2
 5% OK
 Extracting ROMS/Planet Patrol (Unknown) (PAL).bin 2
 5% OK
 Extracting ROMS/Planet Patrol - Planeten Patrouilie (1982) (Spectravision - Spectra video - Quelle) (SA-202 - 412.851 8) (PAL) [different spaceship].bin 2
 5% OK
 Extracting ROMS/Planet Patrol - Planeten Patrouilie (1982) (Spectravision - Spectra video - Quelle) (SA-202 - 412.851 8) (PAL).bin 25% OK
 Extracting ROMS/Plaque Attack (1983) (Activision, Steve Cartwright) (AX-027) ~.bin 25% OK
 Extracting ROMS/Plaque Attack (1983) (Dynacom).bin 2
 5% OK
 Extracting ROMS/Plaque Attack (CCE).bin 2
 5% OK
 Extracting ROMS/Plaque Attack (Digivision).bin 2
 5% OK
 Extracting ROMS/Plaque Attack (Unknown) (PAL).bin 2
 5% OK
 Extracting ROMS/Plaque Attack (Unknown).bin 2
 5% OK
 Extracting ROMS/Plaque Attack - Schutzt Eure Zaehne (1983) (Activision, Steve Cartwright - Ariola) (EAX-027 - 711 027-722) (PAL).bin 25% OK
 Extracting ROMS/PlayAround Demo (1982) (PlayAround - JHM).bin 2
 5% OK
 Extracting ROMS/Pleiades (1983) (UA Limited) (Prototype) ~.bin 2
 6% OK
 Extracting ROMS/Polaris (02-17-1983) (Tigervision, Robert H. O'Neil) (7-007) (Prototype) (4K).bin 26% OK
 Extracting ROMS/Polaris (1983) (Tigervision, Robert H. O'Neil - Teldec) (7-007 - 3.60005 VG) (PAL).bin 26% OK
 Extracting ROMS/Polaris (1983) (Tigervision, Robert H. O'Neil) (7-007) (Prototype).bin 26% OK
 Extracting ROMS/Polaris (1983) (Tigervision, Robert H. O'Neil) (7-007) ~.bin 26% OK
 Extracting ROMS/Pole Position (1983) (CCE) (C-1002).bin 2
 6% OK
 Extracting ROMS/Pole Position (RealSports Driving) (05-15-1983) (Atari - GCC, John Allred, Douglas B. Macrae, Betty Ryan Tylko) (CX2694) (Prototype).bin 2
 6% OK
 Extracting ROMS/Pole Position (RealSports Driving) (1983) (Atari - GCC, John Allred, Douglas B. Macrae, Betty Ryan Tylko) (CX2694) ~.bin 26% OK
 Extracting ROMS/Pole Position (RealSports Driving) (1983) (Atari - GCC, John Allred, Douglas B. Macrae, Betty Ryan Tylko) (CX2694, CX2694P) (PAL).bin 2
 6% OK
 Extracting ROMS/Pole Position (Tron).bin 2
 6% OK
 Extracting ROMS/Polo (1978) (Atari, Carol Shaw - Ralph Lauren) (Prototype) ~.bin 26% OK
 Extracting ROMS/Pompeii (Labyrinth, Lavarinth) (1983) (Apollo) (AP-2011) (Prototype).bin 26% OK
 Extracting ROMS/Pooyan (1983) (Gakken) (001) (PAL).bin 2
 6% OK
 Extracting ROMS/Pooyan (1983) (Konami) (RC 100-X 02) ~.bin 2
 6% OK
 Extracting ROMS/Pooyan (Hack) (32 in 1) (Bit Corporation) (R320).bin 2
 6% OK

Extracting ROMS/Pooyan (Unknown) (PAL).bin 2
 6% OK

Extracting ROMS/Popeye (1983) (Parker Brothers - Roklan, Joe Gaucher) (931519) (PAL).bin 26% OK

Extracting ROMS/Popeye (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5370) (Prototype) (4K).bin 26% OK

Extracting ROMS/Popeye (1983) (Parker Brothers - Roklan, Joe Gaucher) (PB5370) ~.bin 26% OK

Extracting ROMS/Porky's (1983) (20th Century Fox - Lazer Micro Systems - Dunhill Electronics, B. Winston Hendrickson, Randall Hyde, Mark V. Rhoads, John Simonds) (11013) ~.bin 26% OK

Extracting ROMS/Power Lords (1983) (Probe 2000 - NAP) (3149VC) (Prototype) ~.bin 26% OK

Extracting ROMS/Power Play Arcade Video Game Album IV - Atlantis, Cosmic Ark, Dragoonfire (1984) (Amiga) (1125) (Prototype).bin 26% OK

Extracting ROMS/Power Play Arcade Video Game Album V - Mogul Maniac, Surf's Up, Off Your Rocker, S.A.C. Alert (1984) (Amiga) (1130) (Prototype).bin 26% 0K

Extracting ROMS/Power Play Arcade Video Game Album, The - Ghost Attack, Genesis, Havoc (1983) (Amiga) (1110) (Prototype).bin 26% OK

Extracting ROMS/Pressure Cooker (1983) (Activision, Garry Kitchen - Ariola) (EAZ-032 - 771 032-712) (PAL).bin 26% OK

Extracting ROMS/Pressure Cooker (1983) (Activision, Garry Kitchen) (AZ-032) ~.bin 26% OK

Extracting ROMS/Pressure Cooker (CCE).bin 2
 6% OK

Extracting ROMS/Private Eye (1984) (Activision, Bob Whitehead) (AG-034-04) ~.bin 26% OK

Extracting ROMS/Private Eye (1984) (Activision, Bob Whitehead) (EAZ-034-04, EAZ-034-04I) (PAL).bin 26% OK

Extracting ROMS/Private Eye (CCE).bin 2
 6% OK

Extracting ROMS/Pumuckl I (AKA Pumuckl at the Zoo) (1983) (ITT Family Games) (PAL).bin 26% OK

Extracting ROMS/Pursuit of the Pink Panther (Pink Panther - The Video Game, Adventures of the Pink Panther) (1983) (Probe 2000 - NAP, Roger Booth, Todd Marshall, Robin McDaniel, Jim Wickstead) (3152VC) (Prototype) ~.bin 26% OK

Extracting ROMS/Pygmy (AKA Lock 'n' Chase) (Double-Game Package) (1983) (Otto Versaud) (311377) (PAL).bin 26% OK

Extracting ROMS/Pyramid War (AKA Chopper Command) (1983) (Rainbow Vision - Suntek) (SS-004) (PAL).bin 26% OK

Extracting ROMS/Pyramid War (AKA Chopper Command) (Unknown) (PAL) [a].bin 26% OK

Extracting ROMS/Pyramid War (AKA Chopper Command) (Unknown) (PAL).bin 2
 6% OK

Extracting ROMS/Q-bert (1983) (Parker Brothers - Western Technologies, Dave Hampton, Tom Sloper) (931517) (PAL).bin 26% OK

Extracting ROMS/Q-bert (1983) (Parker Brothers - Western Technologies, Dave Hampton, Tom Sloper) (PB5360) ~.bin 26% OK

Extracting ROMS/Q-bert (1987) (Atari) (CX26150).bin 2
 6% OK

Extracting ROMS/Q-bert (1987) (Atari) (CX26150P) (PAL).bin 2
 6% OK

Extracting ROMS/Q-bert (Unknown) (PAL).bin 2
 6% OK

Extracting ROMS/Q-bert (Unknown).bin 2
 6% OK

Extracting ROMS/Q-bert's Qubes (1984) (Parker Brothers - JWDA, Todd Marshall) (PB5550) (Prototype) (4K).bin 26% OK

Extracting ROMS/Q-bert's Qubes (1984) (Parker Brothers - JWDA, Todd Marshall) (PB5550) ~.bin 26% OK

Extracting ROMS/Quadrupen (12-06-1982) (Atari, Frank Hausman, Mimi Nyden, Steve Woita) (CX2686) (Prototype) (4K).bin 26% OK

Extracting ROMS/Quadrupen (18-03-1982) (Atari, Frank Hausman, Mimi Nyden, Steve Woita)

a) (CX2686) (Prototype).bin 27% OK
 Extracting ROMS/Quadruped (1983) (Atari, Frank Hausman, Mimi Nyden, Steve Woita) (CX2686) (Prototype).bin 27% OK
 Extracting ROMS/Quadruped (1983) (Atari, Frank Hausman, Mimi Nyden, Steve Woita) (CX2686) ~.bin 27% OK
 Extracting ROMS/Quest for Quintana Roo (1984) (Sunrise Software - VSS) (1603) ~.bin 27% OK
 Extracting ROMS/Quest for Quintana Roo (1988) (Telegames - VSS) (6057 A227) (PAL).bin 27% OK
 Extracting ROMS/Quest for Quintana Roo (1988) (Telegames - VSS) (6057 A227).bin 27% OK
 Extracting ROMS/Quick Step! (Hop To It, Kibble) (1983) (Imagic, Dave Johnson) (720119-1A, 03211) ~.bin 27% OK
 Extracting ROMS/Quick Step! (Hop To It, Kibble) (1983) (Imagic, Dave Johnson) (720119-2A, 13211, EIX-004-04I) (PAL).bin 27% OK
 Extracting ROMS/Rabbit Transit (08-29-1983) (Atari) (Prototype).bin 27% OK
 Extracting ROMS/Rabbit Transit (Hopalong Catastrophe) (1983) (Starpath Corporation, Brian McGhie) (8) (AR-4104) (PAL).bin 27% OK
 Extracting ROMS/Rabbit Transit (Hopalong Catastrophe) (1983) (Starpath Corporation, Brian McGhie) (8) (AR-4104) ~.bin 27% OK
 Extracting ROMS/Rabbit Transit (Hopalong Catastrophe) (Preview) (1983) (Starpath Corporation, Brian McGhie) (8) (AR-4104).bin 27% OK
 Extracting ROMS/Racer (1982) (Atari - Roklan, Joe Gaucher) (Prototype) [a].bin 27% OK
 Extracting ROMS/Racer (1982) (Atari - Roklan, Joe Gaucher) (Prototype) ~.bin 27% OK
 Extracting ROMS/Racing Car (1983) (Home Vision, R.J.P.G. - Gem International Corporation - VDI) (VCS83124) (PAL) ~.bin 27% OK
 Extracting ROMS/Racing Car (Unknown).bin 27% OK
 Extracting ROMS/Racquetball (1982) (Apollo - Games by Apollo, Ed Salvo, Byron Park s) (AP-2003) (PAL).bin 27% OK
 Extracting ROMS/Racquetball (1982) (Apollo - Games by Apollo, Ed Salvo, Byron Park s) (AP-2003) [a].bin 27% OK
 Extracting ROMS/Racquetball (1982) (Apollo - Games by Apollo, Ed Salvo, Byron Park s) (AP-2003) ~.bin 27% OK
 Extracting ROMS/Racquetball (Unknown) (PAL).bin 27% OK
 Extracting ROMS/Racquetball (Unknown).bin 27% OK
 Extracting ROMS/Rad Action Pak - Kung-Fu Master, Freeway, Frostbite (1990) (HES - Activision) (559) (PAL).bin 27% OK
 Extracting ROMS/Radar (AKA Exocet) (1983) (CCE) (C-867).bin 27% OK
 Extracting ROMS/Radar (AKA Exocet) (Zellers).bin 27% OK
 Extracting ROMS/Radar Lock (Dog Fight) (1989) (Atari, Douglas Neubauer) (CX26176) (PAL).bin 27% OK
 Extracting ROMS/Radar Lock (Dog Fight) (1989) (Atari, Douglas Neubauer) (CX26176) ~.bin 27% OK
 Extracting ROMS/Raft Rider (1983) (U.S. Games Corporation - Western Technologies, Dave Hampton) (VC2006) ~.bin 27% OK
 Extracting ROMS/Raft Rider (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 27% OK
 Extracting ROMS/Raft Rider (Unknown) (PAL).bin 27% OK
 Extracting ROMS/Raiders of the Lost Ark (06-14-82) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2659) (Prototype).bin 27% OK
 Extracting ROMS/Raiders of the Lost Ark (1982) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2659) (PAL).bin 27% OK
 Extracting ROMS/Raiders of the Lost Ark (1982) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2659) ~.bin 27% OK
 Extracting ROMS/Raketen-Angriff (AKA Missile Control) (Videospielkassette - Ariola)

```

(PGP236) (PAL).bin      27%      OK
Extracting ROMS/Ram It (1983) (Telesys, Jim Rupp) (1004) (PAL).bin      2
7%      OK
Extracting ROMS/Ram It (1983) (Telesys, Jim Rupp) (1004) ~.bin      2
7%      OK
Extracting ROMS/Ram It (Unknown) (PAL).bin      2
7%      OK
Extracting ROMS/Rampage! (1989) (Activision - Bobco, Robert C. Polaro) (AK-049-04)
~.bin      27%      OK
Extracting ROMS/Rampage! (1989) (Activision - Bobco, Robert C. Polaro) (EAK-049-04
B) (PAL).bin      27%      OK
Extracting ROMS/Raumbasen-Attacke - Base Attack (1983) (Quelle - Otto Versand) (73
2.074 0 - 781778) (PAL).bin      27%      OK
Extracting ROMS/Raumpatrouille (AKA X'Mission) (1983) (Quelle) (731.064 2) (PAL).bi
n      27%      OK
Extracting ROMS/Reactor (1983) (Parker Brothers, Charlie Heath) (931506) (PAL).bin
27%      OK
Extracting ROMS/Reactor (1983) (Parker Brothers, Charlie Heath) (PB5330) ~.bin
27%      OK
Extracting ROMS/RealSports Baseball (07-09-1982) (Atari, Eric Manghise, Mimi Nyden,
Joseph Tung) (CX2640) (Prototype).bin      27%      OK
Extracting ROMS/RealSports Baseball (1982) (Atari, Eric Manghise, Mimi Nyden, Josep
h Tung) (CX2640) (Prototype) (4K).bin      27%      OK
Extracting ROMS/RealSports Baseball (1982) (Atari, Eric Manghise, Mimi Nyden, Josep
h Tung) (CX2640) (Prototype).bin      28%      OK
Extracting ROMS/RealSports Baseball (1982) (Atari, Eric Manghise, Mimi Nyden, Josep
h Tung) (CX2640) ~.bin      28%      OK
Extracting ROMS/RealSports Basketball (01-11-1983) (Atari - Roklan, Joe Gaucher) (C
X2679) (Prototype) (PAL) ~.bin      28%      OK
Extracting ROMS/RealSports Basketball (12-28-1982) (Atari - Roklan, Joe Gaucher) (C
X2679) (Prototype) (PAL).bin      28%      OK
Extracting ROMS/RealSports Boxing (1987) (Atari - Imagineering, Alex DeMeo) (CX2613
5) ~.bin      28%      OK
Extracting ROMS/RealSports Boxing (1987) (Atari - Imagineering, Alex DeMeo) (CX2613
5, CX26135P) (PAL).bin      28%      OK
Extracting ROMS/RealSports Football (Football II) (1982) (Atari, Alan J. Murphy, Ro
bert Zdybel) (CX2668) (Prototype).bin      28%      OK
Extracting ROMS/RealSports Football (Football II) (1982) (Atari, Alan J. Murphy, Ro
bert Zdybel) (CX2668) ~.bin      28%      OK
Extracting ROMS/RealSports Soccer - Football - RealSports Soccer (1983) (Atari, Jer
ome Domurat, Michael Sierchio) (CX2667) (Prototype).bin      28%      OK
Extracting ROMS/RealSports Soccer - Football - RealSports Soccer (1983) (Atari, Jer
ome Domurat, Michael Sierchio) (CX2667) [no opening tune] ~.bin      28%      0
K
Extracting ROMS/RealSports Soccer - Football - RealSports Soccer (1983) (Atari, Jer
ome Domurat, Michael Sierchio) (CX2667) ~.bin      28%      OK
Extracting ROMS/RealSports Soccer - Football - RealSports Soccer (1983) (Atari, Jer
ome Domurat, Michael Sierchio) (CX2667, CX2667P) (PAL).bin      28%      OK
Extracting ROMS/RealSports Tennis (1982) (Atari - GCC) (CX2680) (Prototype).bin
28%      OK
Extracting ROMS/RealSports Tennis (1983) (Atari - GCC) (CX2680) ~.bin      2
8%      OK
Extracting ROMS/RealSports Tennis (1983) (Atari - GCC) (CX2680, CX2680P) (PAL).bin
28%      OK
Extracting ROMS/RealSports Volleyball (05-11-1982) (Atari, Jim Huether, Alan J. Mur
phy, Robert C. Polaro) (CX2666) (Prototype).bin      28%      OK
Extracting ROMS/RealSports Volleyball (1982) (Atari, Jim Huether, Alan J. Murphy, R
obert C. Polaro) (CX2666) (Prototype).bin      28%      OK
Extracting ROMS/RealSports Volleyball (1982) (Atari, Jim Huether, Alan J. Murphy, R
obert C. Polaro) (CX2666) ~.bin      28%      OK
Extracting ROMS/RealSports Volleyball (1982) (Atari, Jim Huether, Alan J. Murphy, R
obert C. Polaro) (CX2666, CX2666P) (PAL).bin      28%      OK
Extracting ROMS/Red Sea Crossing (1983) (Inspirational Video Concepts, Steve Shusta
ck) (321430) ~.bin      28%      OK

```

Extracting ROMS/Rescue Terra I (1982) (VentureVision, Dan Oliver) (VV2001) ~.bin
28% OK

Extracting ROMS/Resgate Espacial (AKA Moonsweeper) (CCE).bin 2
8% OK

Extracting ROMS/Revenge of the Beefsteak Tomatoes (Revenge of the Cherry Tomatoes) (1983) (20th Century Fox Video Games, John Russell) (11016) ~.bin 28%
OK

Extracting ROMS/Reversi (AKA Othello) (32 in 1) (1988) (Atari, Ed Logg, Carol Shaw) (CX26163P) (PAL).bin 28% OK

Extracting ROMS/Riddle of the Sphinx (1982) (Imagic, Rob Fulop, Bob Smith) (720106-1A, IA3600) ~.bin 28% OK

Extracting ROMS/Riddle of the Sphinx (1982) (Imagic, Rob Fulop, Bob Smith) (720106-2A, IA3600P, EIX-009-04I) (PAL).bin 28% OK

Extracting ROMS/River Patrol (1984) (Tigervision) (7-004) ~.bin 2
8% OK

Extracting ROMS/River Raid (1982) (Activision, Carol Shaw) (AX-020, AX-020-04) ~.bin 28% OK

Extracting ROMS/River Raid (1982) (Activision, Carol Shaw) (EAX-020) (SECAM).bin 28% OK

Extracting ROMS/River Raid (1983) (CCE) (C-811) [a].bin 2
8% OK

Extracting ROMS/River Raid (1983) (CCE) (C-811).bin 2
8% OK

Extracting ROMS/River Raid (1983) (Dactari - Milmar).bin 2
8% OK

Extracting ROMS/River Raid (1983) (Digitel).bin 2
8% OK

Extracting ROMS/River Raid (1984) (Galaga Games) (PAL).bin 2
8% OK

Extracting ROMS/River Raid (1984) (Galaga Games).bin 2
8% OK

Extracting ROMS/River Raid (1984) (Supergame) (71).bin 2
8% OK

Extracting ROMS/River Raid (Canal 3 - Intellivision) (C 3045).bin 2
8% OK

Extracting ROMS/River Raid (Digivision).bin 2
8% OK

Extracting ROMS/River Raid (Fotomania).bin 2
8% OK

Extracting ROMS/River Raid (Genus).bin 2
8% OK

Extracting ROMS/River Raid (Hack) (2600 Screen Search Console) (Jone Yuan Telephonics Enterprise Co) [a].bin 28% OK

Extracting ROMS/River Raid (Hack) (2600 Screen Search Console) (Jone Yuan Telephonics Enterprise Co).bin 28% OK

Extracting ROMS/River Raid (Hack) (Unknown) (PAL) [a].bin 2
8% OK

Extracting ROMS/River Raid (Hack) (Unknown) (PAL).bin 2
8% OK

Extracting ROMS/River Raid (Robby) (18).bin 2
8% OK

Extracting ROMS/River Raid (Tron).bin 2
8% OK

Extracting ROMS/River Raid (Unknown) (PAL).bin 2
8% OK

Extracting ROMS/River Raid (Unknown) [a].bin 2
8% OK

Extracting ROMS/River Raid (Unknown).bin 2
8% OK

Extracting ROMS/River Raid - Jagdflieger (1982) (Activision, Carol Shaw - Ariola) (EAX-020, EAX-020-04B, EAX-020-04I - 711 020-720) (PAL).bin 28% OK

Extracting ROMS/River Raid II (1988) (Activision - Imagineering, Dan Kitchen, David Lubar) (AK-048-04) ~.bin 28% OK

Extracting ROMS/River Raid II (1988) (Activision - Imagineering, Dan Kitchen, David

Lubar) (EAK-048-04, EAK-048-04B) (PAL).bin 29% OK
 Extracting ROMS/River Raid II (AKA River Raid) (1985) (Digitel).bin 2
 9% OK
 Extracting ROMS/River Raid II (AKA River Raid) (Digimax).bin 2
 9% OK
 Extracting ROMS/River Raid II (AKA River Raid) (Supergame).bin 2
 9% OK
 Extracting ROMS/River Raid III (AKA River Raid) (1985) (Digitel).bin 2
 9% OK
 Extracting ROMS/Road Runner (06-25-1984) (Atari - Bobco, Robert C. Polaro) (CX2663) (Prototype).bin 29% OK
 Extracting ROMS/Road Runner (1989) (Atari - Bobco, Robert C. Polaro) (CX2663) (PAL).bin 29% OK
 Extracting ROMS/Road Runner (1989) (Atari - Bobco, Robert C. Polaro) (CX2663) ~.bin 29% OK
 Extracting ROMS/Road Runner (CCE).bin 2
 9% OK
 Extracting ROMS/Robin Hood (1983) (Xonox - K-Tel Software - Computer Magic) (99005, 6220, 6250) (PAL).bin 29% OK
 Extracting ROMS/Robin Hood (1983) (Xonox - K-Tel Software - Computer Magic) (99005, 6220, 6250) ~.bin 29% OK
 Extracting ROMS/Robin Hood (AKA Save Our Ship) (1983) (Quelle) (684.733 9) (PAL).bin 29% OK
 Extracting ROMS/Robot Fight (AKA Space Robot) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83101) (PAL).bin 29% OK
 Extracting ROMS/Robot Tank (HES - Activision) (PAL).bin 2
 9% OK
 Extracting ROMS/Robot Tank (Robotank) (1983) (Activision, Alan Miller) (AZ-028, AG-028-04) ~.bin 29% OK
 Extracting ROMS/Robot Tank - Rebellion der Roboter (Robotank) (1983) (Activision, Alan Miller - Ariola) (EAZ-028 - 711 028-725) (PAL).bin 29% OK
 Extracting ROMS/Roc 'n Rope (1984) (CBS Electronics - Individeo, Ed English) (4L175 1) (PAL).bin 29% OK
 Extracting ROMS/Roc 'n Rope (1984) (Coleco - Individeo, Ed English) (2667) ~.bin 29% OK
 Extracting ROMS/Rocky & Bullwinkle (04-20-1983) (M Network, Steve Crandall, Patricia Lewis Du Long) (MT4646) (Prototype) ~.bin 29% OK
 Extracting ROMS/Rodeo Champ (AKA Stampede) (4 Game in One) (1983) (Bit Corporation) (PGP218) (PAL).bin 29% OK
 Extracting ROMS/Room of Doom (1982) (CommaVid, Irwin Gaines) (CM-004) ~.bin 29% OK
 Extracting ROMS/Room of Doom (Unknown) (PAL).bin 2
 9% OK
 Extracting ROMS/Room of Doom - Raum ohne Ausweg (1982) (CommaVid, Irwin Gaines - Ariola) (CM-004 - 712 004-720) (PAL).bin 29% OK
 Extracting ROMS/Rubik's Cube (AKA Atari Video Cube) (1984) (Atari - GCC) (CX2698).bin 29% OK
 Extracting ROMS/Rubik's Cube 3-D (1982) (Atari, Peter C. Niday) (Prototype) ~.bin 29% OK
 Extracting ROMS/Rush Hour (1983) (CommaVid, Ben Burch) (CM-010) (Prototype) [a1].bin 29% OK
 Extracting ROMS/Rush Hour (1983) (CommaVid, Ben Burch) (CM-010) (Prototype) [a2].bin 29% OK
 Extracting ROMS/Rush Hour (1983) (CommaVid, Ben Burch) (CM-010) (Prototype) ~.bin 29% OK
 Extracting ROMS/S.A.C. Alert (Joyboard) (1983) (Amiga - Video Soft) (3135) (Prototype) (PAL).bin 29% OK
 Extracting ROMS/S.A.C. Alert (Joyboard) (1983) (Amiga - Video Soft) (3135) (Prototype) ~.bin 29% OK
 Extracting ROMS/Saboteur (Sabotage) (05-20-1983) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX26119) (Prototype).bin 29% OK
 Extracting ROMS/Saboteur (Sabotage) (06-09-1983) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX26119) (Prototype).bin 29% OK
 Extracting ROMS/Saboteur (Sabotage) (06-15-1983) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX26119) (Prototype).bin 29% OK

tt Warshaw) (CX26119) (Prototype).bin 29% OK
 Extracting ROMS/Saboteur (Sabotage) (09-02-1983) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX26119) (Prototype).bin 29% OK
 Extracting ROMS/Saboteur (Sabotage) (12-20-1983) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX26119) (Prototype) ~.bin 29% OK
 Extracting ROMS/Save Mary! (Saving Mary) (04-03-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26178) (Prototype).bin 29% OK
 Extracting ROMS/Save Mary! (Saving Mary) (10-24-1991) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26178) (Prototype) (PAL).bin 2 9% OK
 Extracting ROMS/Save Mary! (Saving Mary) (11-21-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26178) (Prototype) ~.bin 29% 0 K
 Extracting ROMS/Save Our Ship (1983) (TechnoVision - Video Technology) (TVS1002) (PAL) ~.bin 29% OK
 Extracting ROMS/Save Our Ship (Hack) (32 in 1) (Bit Corporation) (R320).bin 29% OK
 Extracting ROMS/Save Our Ship (Unknown) (PAL).bin 2 9% OK
 Extracting ROMS/Save Our Ship (Unknown).bin 2 9% OK
 Extracting ROMS/Save the Whales (02-07-1983) (20th Century Fox Video Games - Beck-Tech, Steve Beck) (11035) (Prototype).bin 29% OK
 Extracting ROMS/Save the Whales (1983) (20th Century Fox Video Games - Beck-Tech, Steve Beck) (11035) (Prototype) ~.bin 29% OK
 Extracting ROMS/Schiessbude (AKA Carnival) (1983) (Quelle) (701.134 9) (PAL).bin 29% OK
 Extracting ROMS/Schnapp die Apfeldiebe (AKA Plaque Attack) (1983) (Quelle) (429.663 8) (PAL).bin 30% OK
 Extracting ROMS/Schussel, der Polizistenschreck (AKA Guignol) (1983) (Quelle) (731.273 9) (PAL).bin 30% OK
 Extracting ROMS/Scuba Diver (AKA Skindiver) (1983) (Panda) (104).bin 3 0% OK
 Extracting ROMS/Scuba Diver (AKA Skindiver) (Zellers).bin 3 0% OK
 Extracting ROMS/Sea Battle (High Seas) (1983) (Intellivision Productions - M Network - APh Technological Consulting, Bruce Pedersen, Larry Zwick) (MT5860) ~.bin 30% OK
 Extracting ROMS/Sea Hawk (AKA Seahawk) (1983) (Panda) (108).bin 3 0% OK
 Extracting ROMS/Sea Hawk (AKA Seahawk) (1987) (Froggo) (FG1008).bin 3 0% OK
 Extracting ROMS/Sea Hawk (AKA Seahawk) (CCE).bin 3 0% OK
 Extracting ROMS/Sea Hawk (AKA Seahawk) (Zellers).bin 3 0% OK
 Extracting ROMS/Sea Hunt (AKA Skindiver) (1987) (Froggo) (FG1009).bin 3 0% OK
 Extracting ROMS/Sea Hunt (AKA Skindiver) (CCE).bin 3 0% OK
 Extracting ROMS/Sea Monster (1982) (Bit Corporation) (PG201).bin 3 0% OK
 Extracting ROMS/Sea Monster (1982) (Puzzy - Bit Corporation) (PG201) (PAL).bin 30% OK
 Extracting ROMS/Sea Monster (1983) (Goliath) (8) (PAL).bin 3 0% OK
 Extracting ROMS/Sea Monster (Unknown) (PAL).bin 3 0% OK
 Extracting ROMS/Sea Monster - O Monstro Marinho (1983) (CCE) (C-805).bin 3 0% OK
 Extracting ROMS/Sea Monster - See-Monster (1982) (Bit Corporation) (PG201) (PAL) ~.bin 30% OK
 Extracting ROMS/Seahawk (1982) (John Sands Electronics) (JS145A) (PAL).bin 30% OK

Extracting ROMS/Seahawk (1982) (Sancho - Tang's Electronic Co.) (TEC002) (PAL) ~.bin
n 30% OK

Extracting ROMS/Seamonster - Monstre des Mers (1982) (Puzzy - Bit Corporation) (PG2
01).bin 30% OK

Extracting ROMS/Seaquest (1983) (Activision, Steve Cartwright) (AX-022) ~.bin
30% OK

Extracting ROMS/Seaquest (1983) (CCE) (C-815) [a].bin 3
0% OK

Extracting ROMS/Seaquest (1983) (CCE) (C-815).bin 3
0% OK

Extracting ROMS/Seaquest (1983) (Dinatronic).bin 3
0% OK

Extracting ROMS/Seaquest (1983) (Dynacom).bin 3
0% OK

Extracting ROMS/Seaquest (Canal 3 - Intellivision).bin 3
0% OK

Extracting ROMS/Seaquest (Digivision).bin 3
0% OK

Extracting ROMS/Seaquest (Fotomania).bin 3
0% OK

Extracting ROMS/Seaquest (Unknown) (PAL).bin 3
0% OK

Extracting ROMS/Seaquest - Rettung aus der Tiefe (1983) (Activision, Steve Cartwright - Ariola) (EAX-022, EAX-022-04I - 711 022-720) (PAL).bin 30% OK

Extracting ROMS/Seawolf 3 (Submarine Commander Beta) (03-23-1981) (Sears Tele-Game s, Marilyn Churchill, Matthew L. Hubbard) (CX2647 - 49-75142) (Prototype) (PAL).bin
30% OK

Extracting ROMS/Secret Agent (Paddle) (1983) (Data Age) (Prototype) ~.bin
30% OK

Extracting ROMS/Secret Quest (1989) (Atari - Axlom, Steve DeFrisco) (CX26170) ~.bin
30% OK

Extracting ROMS/Secret Quest (1989) (Atari - Axlom, Steve DeFrisco) (CX26170, CX261
70P).bin 30% OK

Extracting ROMS/See Saw (AKA Circus Atari) (Double-Game Package) (1983) (Otto Versa nd) (649635) (PAL).bin 30% OK

Extracting ROMS/Sentinel (Light Gun) (1991) (Atari - Imagineering, David Lubar) (CX
26183) ~.bin 30% OK

Extracting ROMS/Shark Attack (AKA Lochjaw) (1982) (Apollo - Games by Apollo, Steve
Stringfellow) (AP-2005) (PAL).bin 30% OK

Extracting ROMS/Shark Attack (AKA Lochjaw) (1982) (Apollo - Games by Apollo, Steve
Stringfellow) (AP-2005).bin 30% OK

Extracting ROMS/Shootin' Gallery (1983) (Imagic, Dennis Koble) (720021-1A, IA3410)
~.bin 30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (01-16-1990) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) (PAL).bin 3
0% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 2].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 3].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 4].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 5].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 6].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (03-07-1989) (Atari - Axlom, Tod Frye -
Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype).bin 30% 0
K

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 2].bin
30% OK

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 3].bin
31% OK

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 4].bin
31% OK

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 5].bin
31% OK

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) [screen 6].bin
31% OK

Extracting ROMS/Shooting Arcade (Light Gun) (09-19-1989) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) ~.bin 31%

OK

Extracting ROMS/Shuttle Orbiter (1983) (Avalon Hill, Jean Baer, Bill Hood) (500400 2) ~.bin 31% OK

Extracting ROMS/Sinistar (01-04-1984) (Atari, Lou Harp) (CX26122) (Prototype).bin
31% OK

Extracting ROMS/Sinistar (01-23-1984) (Atari, Lou Harp) (CX26122) (Prototype).bin
31% OK

Extracting ROMS/Sinistar (01-XX-1984) (Atari, Lou Harp) (CX26122) (Prototype).bin
31% OK

Extracting ROMS/Sinistar (02-13-1984) (Atari, Lou Harp) (CX26122) (Prototype) ~.bin
31% OK

Extracting ROMS/Sir Lancelot (1983) (Xonox - K-Tel Software - Product Guild, Anthony R. Henderson) (99006, 6220) (PAL).bin 31% OK

Extracting ROMS/Sir Lancelot (1983) (Xonox - K-Tel Software - Product Guild, Anthony R. Henderson) (99006, 6220) ~.bin 31% OK

Extracting ROMS/Skate Boardin' (1987) (Absolute Entertainment, David Crane) (AG-042-02, AG-042-04) ~.bin 31% OK

Extracting ROMS/Skate Boardin' (1987) (Absolute Entertainment, David Crane) (EAZ-042-04B, EAZ-042-04I) (PAL).bin 31% OK

Extracting ROMS/Skeet Shoot (1981) (Apollo - Games by Apollo, Ed Salvo) (AP-1001) (PAL) (4K).bin 31% OK

Extracting ROMS/Skeet Shoot (1981) (Apollo - Games by Apollo, Ed Salvo) (AP-1001) ~.bin 31% OK

Extracting ROMS/Ski Hunt (Skiing Hunt) (1983) (Home Vision, R.J.P.G. - Gem International Corporation - VDI) (VCS83106) (PAL) ~.bin 31% OK

Extracting ROMS/Ski Run (AKA Crazy Ski) (1983) (Suntek) (SS-024) (PAL).bin
31% OK

Extracting ROMS/Ski Run (AKA Crazy Ski) (Video Game Cartridge - Ariola) (TP-607) (PAL).bin 31% OK

Extracting ROMS/Skiing (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co.).bin 31% OK

Extracting ROMS/Skiing (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 3
1% OK

Extracting ROMS/Skiing (Dactari - Milmar).bin 3
1% OK

Extracting ROMS/Skiing (Unknown) (PAL) (4K).bin 3
1% OK

Extracting ROMS/Skiing (Unknown) (PAL).bin 3
1% OK

Extracting ROMS/Skiing - Le Ski (1980) (Activision, Bob Whitehead) (AG-005, CAG-005, AG-005-04) ~.bin 31% OK

Extracting ROMS/Skiing - Ski Weltcup (1980) (Activision, Bob Whitehead - Ariola) (EAG-005, PAG-005, EAG-005-04B - 711 005-715) (PAL).bin 31% OK

Extracting ROMS/Skindiver (1983) (Sancho - Tang's Electronic Co.) (TEC003) (PAL) ~.bin 31% OK

Extracting ROMS/Sky Alien (Hack) (32 in 1) (Bit Corporation) (R320).bin 3
1% OK

Extracting ROMS/Sky Alien (Sky Alien) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83112) (PAL) ~.bin 31% OK
 Extracting ROMS/Sky Diver (1979) (Atari, Jim Huether) (CX2629, CX2629P) (PAL).bin 31% OK
 Extracting ROMS/Sky Diver (32 in 1) (1988) (Atari, Jim Huether) (CX26163P) (PAL).bin 31% OK
 Extracting ROMS/Sky Diver (Hack) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 31% OK
 Extracting ROMS/Sky Diver (Hack) (Unknown) (PAL).bin 1% OK 3
 Extracting ROMS/Sky Diver - Dare Diver (1979) (Atari, Jim Huether - Sears) (CX2629 - 6-99843, 49-75118) ~.bin 31% OK
 Extracting ROMS/Sky Jinks (1982) (Activision, Bob Whitehead) (AG-019) ~.bin 31% OK
 Extracting ROMS/Sky Jinks (CCE).bin 1% OK 3
 Extracting ROMS/Sky Jinks (Hack) (Unknown) (PAL).bin 1% OK 3
 Extracting ROMS/Sky Jinks - Wettflug gegen die Zeit (1982) (Activision, Bob Whitehead - Ariola) (EAG-019, EAG-019-04I - 711 019-715) (PAL).bin 31% OK
 Extracting ROMS/Sky Patrol (Aerial Ace) (1982) (Imagic, Brad Stewart) (720106-1A, I A3409) (Prototype) ~.bin 31% OK
 Extracting ROMS/Sky Scraper (AKA Base Attack) (1983) (Goliath - Hot Shot) (83-415) (PAL).bin 31% OK
 Extracting ROMS/Sky Skipper (1983) (Parker Brothers) (931510) (PAL).bin 1% OK 3
 Extracting ROMS/Sky Skipper (1983) (Parker Brothers) (PB5350) ~.bin 1% OK 3
 Extracting ROMS/Skydiver (AKA Parachute) (1983) (Suntek) (SS-030) (PAL).bin 31% OK
 Extracting ROMS/Slot Machine (1979) (Atari, David Crane) (CX2653P) (PAL).bin 31% OK
 Extracting ROMS/Slot Machine (32 in 1) (1988) (Atari, David Crane) (CX26163P) (PAL).bin 31% OK
 Extracting ROMS/Slot Machine (Unknown) (PAL) (4K).bin 1% OK 3
 Extracting ROMS/Slot Machine - Slots (1979) (Atari, David Crane - Sears) (CX2653 - 6-99823, 49-75111) ~.bin 31% OK
 Extracting ROMS/Slot Racers (1978) (Atari, Warren Robinett) (CX2606, CX2606P) (PAL).bin 31% OK
 Extracting ROMS/Slot Racers (32 in 1) (1988) (Atari, Warren Robinett) (CX26163P) (PAL).bin 31% OK
 Extracting ROMS/Slot Racers - Maze (1978) (Atari, Warren Robinett - Sears) (CX2606 - 6-99825, 49-75112) ~.bin 31% OK
 Extracting ROMS/Smash Hit Pak - Frogger, Boxing, Seaquest, Skiing, Stampede (HES) (498) (PAL).bin 31% OK
 Extracting ROMS/Smurf - Rescue in Gargamel's Castle (Smurf, Smurf Action) (1983) (Coleco - JWDA, Todd Marshall, Robin McDaniel, Henry Will IV) (2465) (Prototype).bin 31% OK
 Extracting ROMS/Smurf - Rescue in Gargamel's Castle (Smurf, Smurf Action) (1983) (Coleco - JWDA, Todd Marshall, Robin McDaniel, Henry Will IV) (2465) ~.bin 1% OK 3
 Extracting ROMS/Smurf - Schtroumpfs - Pitufos (1983) (CBS Electronics - JWDA, Todd Marshall, Robin McDaniel, Henry Will IV) (4L1767, 4L1768, 4L1769, 4L1770) (PAL).bin 31% OK
 Extracting ROMS/Smurfs Save the Day (Kid Vid Voice Module) (1983) (Coleco, Rob Harris) (2511) ~.bin 31% OK
 Extracting ROMS/Snail Against Squirrel (1983) (Bit Corporation) (PG208).bin 31% OK
 Extracting ROMS/Snail Against Squirrel (Unknown) (PAL) [a].bin 1% OK 3
 Extracting ROMS/Snail Against Squirrel (Unknown) (PAL).bin 2% OK 3
 Extracting ROMS/Snail Against Squirrel - Schnecke gegen Eichhoernchen (1983) (Bit C

orporation) (PG208) (PAL) ~.bin 32% OK
 Extracting ROMS/Sneak 'n Peek (Hide 'n Seek) (1982) (U.S. Games Corporation - Videc - JWDA, Garry Kitchen, Paul Willson) (VC1002) ~.bin 32% OK
 Extracting ROMS/Sneak 'n Peek (Unknown) (PAL).bin 2% OK
 Extracting ROMS/Sneak 'n Peek - Der Unsichtbare (1983) (Carrere Video - JWDA, Garry Kitchen, Paul Willson - Teldec - Prism) (USC1002) (PAL).bin 32% OK
 Extracting ROMS/Snoopy (AKA Snoopy and the Red Baron) (Digivision).bin 2% OK
 Extracting ROMS/Snoopy and the Red Baron (05-27-1983) (Atari, Ed Bogas, Sam Comstock, Richard Dobbis, Nick 'Sandy Maiwald' Turner) (CX26111) (Prototype).bin 2% OK
 Extracting ROMS/Snoopy and the Red Baron (1983) (Atari, Ed Bogas, Sam Comstock, Richard Dobbis, Nick 'Sandy Maiwald' Turner) (CX26111) (PAL).bin 32% OK
 Extracting ROMS/Snoopy and the Red Baron (1983) (Atari, Ed Bogas, Sam Comstock, Richard Dobbis, Nick 'Sandy Maiwald' Turner) (CX26111) ~.bin 32% OK
 Extracting ROMS/Snoopy and the Red Baron (Canal 3 - Intellivision) (C 3007).bin 32% OK
 Extracting ROMS/Snoopy and the Red Baron (CCE).bin 2% OK
 Extracting ROMS/Snow Hunter (AKA Ski Hunt) (4 Game in One) (1983) (Bit Corporation) (CP405) (PAL).bin 32% OK
 Extracting ROMS/Snow White (02-09-1983) (Atari, Greg Easter, Mimi Nyden) (CX26107) (Prototype) ~.bin 32% OK
 Extracting ROMS/Snow White (11-09-1982) (Atari, Greg Easter, Mimi Nyden) (CX26107) (Prototype).bin 32% OK
 Extracting ROMS/Soccer (AKA International Soccer) (1988) (Telegames) (5687 A279).bin 32% OK
 Extracting ROMS/Solar Fox (1983) (CBS Electronics, Bob Curtiss) (4L 2487 5000) (Prototype) (4K).bin 32% OK
 Extracting ROMS/Solar Fox (1983) (CBS Electronics, Bob Curtiss) (4L 2487 5000) ~.bin 32% OK
 Extracting ROMS/Solar Fox (1983) (CBS Electronics, Bob Curtiss) (4L1852, 4L1853, 4L1854, 4L1855) (PAL).bin 32% OK
 Extracting ROMS/Solar Fox (Unknown) (PAL).bin 2% OK
 Extracting ROMS/Solar Storm (Paddle) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Dennis Koble) (720113-1A, 03206) ~.bin 32% OK
 Extracting ROMS/Solar Storm (Paddle) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Dennis Koble) (720113-2A, 13206) (PAL).bin 32% OK
 Extracting ROMS/Solar Storm (Paddle) (Canal 3 - Intellivision).bin 2% OK
 Extracting ROMS/Solaris (The Last Starfighter, Star Raiders II, Universe) (1986) (Atari, Douglas Neubauer, Mimi Nyden) (CX26136) (PAL).bin 32% OK
 Extracting ROMS/Solaris (The Last Starfighter, Star Raiders II, Universe) (1986) (Atari, Douglas Neubauer, Mimi Nyden) (CX26136) (Prototype).bin 32% OK
 Extracting ROMS/Solaris (The Last Starfighter, Star Raiders II, Universe) (1986) (Atari, Douglas Neubauer, Mimi Nyden) (CX26136) ~.bin 32% OK
 Extracting ROMS/Sorcerer (1983) (Mythic, Bill Bryner, Bruce de Graaf) (MA1001) ~.bin 32% OK
 Extracting ROMS/Sorcerer's Apprentice (1983) (Atari, Dave Joly, Peter C. Niday, Robert Vieira) (CX26109) (PAL).bin 32% OK
 Extracting ROMS/Sorcerer's Apprentice (1983) (Atari, Dave Joly, Peter C. Niday, Robert Vieira) (CX26109) (Prototype) [a].bin 32% OK
 Extracting ROMS/Sorcerer's Apprentice (1983) (Atari, Dave Joly, Peter C. Niday, Robert Vieira) (CX26109) (Prototype).bin 32% OK
 Extracting ROMS/Sorcerer's Apprentice (1983) (Atari, Dave Joly, Peter C. Niday, Robert Vieira) (CX26109) ~.bin 32% OK
 Extracting ROMS/Space Adventure (AKA Flash Gordon) (Zellers).bin 2% OK
 Extracting ROMS/Space Attack (1982) (M Network - INTV - APH Technological Consulting, Hal Finney, Bruce Pedersen) (MT5659) ~.bin 32% OK
 Extracting ROMS/Space Attack (1988) (Telegames) (PAL).bin 2% OK

Extracting ROMS/Space Canyon (AKA Space Cavern) (1983) (Panda) (100).bin 3
2% OK

Extracting ROMS/Space Cavern (1982) (Apollo - Games by Apollo, Dan Oliver) (AP-200
2) ~.bin 32% OK

Extracting ROMS/Space Cavern - Les guerriers de l'espace (1982) (Apollo - Games by
Apollo, Dan Oliver - RCA Video Jeux) (AP-2002) (PAL).bin 32% OK

Extracting ROMS/Space Eagle (AKA Exocet) (1983) (Goliath - Hot Shot) (83-213) (PA
L).bin 32% OK

Extracting ROMS/Space Invaders (1980) (Atari, Richard Maurer - Sears) (CX2632 - 49-
75153) ~.bin 32% OK

Extracting ROMS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PA
L) [different speed and colors].bin 32% OK

Extracting ROMS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PA
L) [fixed].bin 32% OK

Extracting ROMS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PA
L).bin 32% OK

Extracting ROMS/Space Invaders (Hack) (32 in 1) (Bit Corporation) (R320).bin
32% OK

Extracting ROMS/Space Jockey (1982) (U.S. Games Corporation - Vidtec - JWDA, Garry
Kitchen) (VC1001) ~.bin 32% OK

Extracting ROMS/Space Jockey (1983) (Carrere Video - JWDA, Garry Kitchen - Teldec -
Prism) (USC1001) (PAL).bin 32% OK

Extracting ROMS/Space Jockey (Unknown) (PAL) [a].bin 3
3% OK

Extracting ROMS/Space Jockey (Unknown) (PAL).bin 3
3% OK

Extracting ROMS/Space Jockey (Unknown).bin 3
3% OK

Extracting ROMS/Space Monster (AKA Condor Attack) (1982) (Funvision - Fund. Interna-
tional Co.) (F2001) (PAL).bin 33% OK

Extracting ROMS/Space Raid (AKA MegaMania) (1983) (Rainbow Vision - Suntek) (SS-00
7) (PAL).bin 33% OK

Extracting ROMS/Space Raid (AKA MegaMania) (2600 Screen Search Console) (Jone Yuan
Telephonic Enterprise Co).bin 33% OK

Extracting ROMS/Space Raid (AKA MegaMania) (Unknown) (PAL).bin 3
3% OK

Extracting ROMS/Space Robot (1983) (Goliath) (1) (PAL).bin 3
3% OK

Extracting ROMS/Space Robot (Dimax - Sinmax) (SM8001) (PAL).bin 3
3% OK

Extracting ROMS/Space Robot (Dimax - Sinmax) (SM8001).bin 3
3% OK

Extracting ROMS/Space Robot (Unknown) (PAL).bin 3
3% OK

Extracting ROMS/Space Robot (Unknown).bin 3
3% OK

Extracting ROMS/Space Shuttle - A Journey Into Space (1983) (Activision - Woodside
Design Associates, Steve 'Jessica Stevens' Kitchen) (AZ-033, AZ-033-04) [FE bankswi-
tching] ~.bin 33% OK

Extracting ROMS/Space Shuttle - A Journey Into Space (1983) (Activision - Woodside
Design Associates, Steve 'Jessica Stevens' Kitchen) (AZ-033, AZ-033-04) ~.bin
33% OK

Extracting ROMS/Space Shuttle - A Journey Into Space (1983) (Activision - Woodside
Design Associates, Steve 'Jessica Stevens' Kitchen) (EAZ-033) (SECAM).bin
33% OK

Extracting ROMS/Space Shuttle - A Journey Into Space - Eine Reise ins All (1983) (A
ctivision - Woodside Design Associates, Steve 'Jessica Stevens' Kitchen - Ariola) (E
AZ-033 - 711 033-725) (PAL).bin 33% OK

Extracting ROMS/Space Tunnel (1982) (Bit Corporation) (PG202).bin 3
3% OK

Extracting ROMS/Space Tunnel (1982) (Puzzy - Bit Corporation) (PG202) (PAL).bin
33% OK

Extracting ROMS/Space Tunnel (1983) (Goliath) (7) (PAL).bin 3
3% OK

Extracting ROMS/Space Tunnel - Le Tunnel de L'Estace (1982) (Puzzy - Bit Corporation) (PG202).bin 33% OK
 Extracting ROMS/Space Tunnel - O Túnel Espacial (1983) (CCE) (C-807).bin 3% OK
 Extracting ROMS/Space Tunnel - Weltraum-Tunnel (1982) (Bit Corporation) (PG202) (PAL).bin ~.bin 33% OK
 Extracting ROMS/Space War (1978) (Atari, Ian Shepard) (CX2604, CX2604P) (PAL).bin 33% OK
 Extracting ROMS/Space War (Unknown) (PAL) (4K).bin 3% OK
 Extracting ROMS/Space War (Unknown) (PAL).bin 3% OK
 Extracting ROMS/Space War - Space Combat (1978) (Atari, Ian Shepard - Sears) (CX2604 - 6-99812, 49-75106) ~.bin 33% OK
 Extracting ROMS/Space War - Space Star (32 in 1) (1988) (Atari, Ian Shepard) (CX26163P) (PAL).bin 33% OK
 Extracting ROMS/Spacechase (Space Attack) (1982) (Apollo - Games by Apollo, Ed Salv o, Byron Parks) (AP-2001) (PAL).bin 33% OK
 Extracting ROMS/Spacechase (Space Attack) (1982) (Apollo - Games by Apollo, Ed Salv o, Byron Parks) (AP-2001) ~.bin 33% OK
 Extracting ROMS/SpaceMaster X-7 (1983) (20th Century Fox Video Games - Sirius Software, David Lubar) (11022) ~.bin 33% OK
 Extracting ROMS/SpaceMaster X-7 (Hack) (32 in 1) (Bit Corporation) (R320).bin 33% OK
 Extracting ROMS/SpaceMaster X-7 (Unknown) (PAL).bin 3% OK
 Extracting ROMS/Spectracube Invasion (AKA Immies & Aggies) (1983) (Suntek) (SS-025) (PAL).bin 33% OK
 Extracting ROMS/Spider Fighter (1983) (Activision, Larry Miller) (AX-021) ~.bin 33% OK
 Extracting ROMS/Spider Fighter (1983) (Dynacom).bin 3% OK
 Extracting ROMS/Spider Fighter (Canal 3 - Intellivision).bin 3% OK
 Extracting ROMS/Spider Fighter (Digivision).bin 3% OK
 Extracting ROMS/Spider Fighter (Hack) (32 in 1) (Bit Corporation) (R320).bin 33% OK
 Extracting ROMS/Spider Fighter (Unknown) (PAL).bin 3% OK
 Extracting ROMS/Spider Fighter (Unknown).bin 3% OK
 Extracting ROMS/Spider Fighter - Monster greifen an (1983) (Activision, Larry Miller - Ariola) (EAX-021, EAX-021-04I - 711 021-720) (PAL).bin 33% OK
 Extracting ROMS/Spider Kong (AKA Inca Gold) (1983) (Goliath) (6) (PAL) [a].bin 33% OK
 Extracting ROMS/Spider Kong (AKA Inca Gold) (1983) (Goliath) (6) (PAL).bin 33% OK
 Extracting ROMS/Spider Maze (AKA Inca Gold) (1982) (K-Tel Vision) (PAL).bin 33% OK
 Extracting ROMS/Spider Maze (AKA Inca Gold) (1982) (K-Tel Vision).bin 3% OK
 Extracting ROMS/Spider Monster - Inca Gold (1982) (Funvision - Fund. International Co.) (PAL) ~.bin 33% OK
 Extracting ROMS/Spider-Man (1982) (Parker Brothers, David Lamkins, Laura Nikolich) (931503) (PAL).bin 33% OK
 Extracting ROMS/Spider-Man (1982) (Parker Brothers, David Lamkins, Laura Nikolich) (PB5900) ~.bin 33% OK
 Extracting ROMS/Spider-Man (Unknown) (PAL).bin 3% OK
 Extracting ROMS/Spiderdroid (AKA Amidar) (1987) (Froggo) (FG1002).bin 3% OK
 Extracting ROMS/Spiderman (AKA Spider-Man) (1983) (Quelle) (495.663 7) (PAL).bin 33% OK

Extracting ROMS/Spike's Peak (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 7210, 06003. 99001) (PAL).bin 33% OK
 Extracting ROMS/Spike's Peak (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 7210, 06003. 99001) ~.bin 33% OK
 Extracting ROMS/Spinning Fireball (Unknown) (PAL).bin 3% OK
 Extracting ROMS/Spinning Fireball (Unknown).bin 3% OK
 Extracting ROMS/Spinning Fireball - Fire Spinner - Fireball Spinner (1983) (ZiMAG - Emag - Vidco) (GN-080) (Prototype) ~.bin 33% OK
 Extracting ROMS/Spitfire Attack (Flight Commander) (1983) (Milton Bradley Company - Video Soft, Frank Ellis) (4363) ~.bin 33% OK
 Extracting ROMS/Sports Action Pak - Enduro, Ice Hockey, Fishing Derby, Dragster (1988) (HES - Activision) (PAL).bin 33% OK
 Extracting ROMS/Springer (1983) (Tigervision - Software Electronics Corporation - Teldec - Prism) (7-006 - 3.60008 VG) (PAL).bin 33% OK
 Extracting ROMS/Springer (1983) (Tigervision - Software Electronics Corporation) (7-006) ~.bin 34% OK
 Extracting ROMS/Sprint Master (Sprint 88, Sprint 2600) (1988) (Atari - Bobco, Robert C. Polaro) (CX26155) ~.bin 34% OK
 Extracting ROMS/Sprint Master (Sprint 88, Sprint 2600) (1988) (Atari - Bobco, Robert C. Polaro) (CX26155P) (PAL).bin 34% OK
 Extracting ROMS/Spy Hunter (Dual Control Module) (1984) (SEGA, Jeff Lorenz) (011-01, 011-02) ~.bin 34% OK
 Extracting ROMS/Spy Vs. Spy (AKA Chopper Command) (4 Game in One) (1983) (Bit Corporation) (PGP213) (PAL).bin 34% OK
 Extracting ROMS/Squeeze Box (1983) (U.S. Games Corporation - JWDA, Todd Marshall, Robin McDaniel, Henry Will IV) (VC2002) ~.bin 34% OK
 Extracting ROMS/Squirrel - O Esquilo (AKA Snail Against Squirrel) (1983) (CCE) (C-809).bin 34% OK
 Extracting ROMS/Squoosh (Vat's Incredible!, The Grape Escape) (1983) (Apollo) (AP-2012) (Prototype) [a].bin 34% OK
 Extracting ROMS/Squoosh (Vat's Incredible!, The Grape Escape) (1983) (Apollo) (AP-2012) (Prototype) ~.bin 34% OK
 Extracting ROMS/Sssnake (1982) (Data Age) (DA1003) ~.bin 4% OK
 Extracting ROMS/Sssnake (1983) (Gameworld) (133-003) (PAL).bin 4% OK
 Extracting ROMS/Stampede (1981) (Activision, Bob Whitehead) (AG-011) ~.bin 34% OK
 Extracting ROMS/Stampede (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 34% OK
 Extracting ROMS/Stampede (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 4% OK
 Extracting ROMS/Stampede (Canal 3 - Intellivision).bin 4% OK
 Extracting ROMS/Stampede (Hack) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 34% OK
 Extracting ROMS/Stampede (Unknown) (PAL) (4K).bin 4% OK
 Extracting ROMS/Stampede (Unknown) (PAL).bin 4% OK
 Extracting ROMS/Stampede (Unknown).bin 4% OK
 Extracting ROMS/Stampede - Lasso-Helden (1981) (Activision, Bob Whitehead - Ariola) (EAG-011, PAG-011 - 711 011-715) (PAL).bin 34% OK
 Extracting ROMS/Star Fox (1983) (Mythicom, Bill Bryner, Bruce de Graaf) (MA1003) ~.bin 34% OK
 Extracting ROMS/Star Raiders (1981) (Atari, Carla Meninsky - Sears) (CX2660 - 49-75187) (Prototype) (4K).bin 34% OK
 Extracting ROMS/Star Raiders (Video Touch Pad) (1982) (Atari, Carla Meninsky - Sears) (CX2660 - 49-75187) ~.bin 34% OK
 Extracting ROMS/Star Raiders (Video Touch Pad) (1982) (Atari, Carla Meninsky) (CX2660) (PAL).bin 34% OK

Extracting ROMS/Star Ship - Outer Space (Star Trek, Space, Space Mission) (1977) (Atari, Bob Whitehead - Sears) (CX2603 - 99803, 49-75601) ~.bin 34% OK
 Extracting ROMS/Star Strike (1983) (M Network - INTV, David Akers, Patricia Lewis D u Long) (MT4313) ~.bin 34% OK
 Extracting ROMS/Star Strike (1988) (Telegames) (PAL).bin 3
 4% OK
 Extracting ROMS/Star Trek (Unknown) (PAL).bin 3
 4% OK
 Extracting ROMS/Star Trek - Strategic Operations Simulator (1983) (SEGA, Jeff Loren z - Teldec) (004-01 - 3.60103 VG) (PAL).bin 34% OK
 Extracting ROMS/Star Trek - Strategic Operations Simulator (1983) (SEGA, Jeff Loren z) (004-01) ~.bin 34% OK
 Extracting ROMS/Star Voyager (1982) (Imagic, Bob Smith) (720000-201, 720102-1B, IA3 201) ~.bin 34% OK
 Extracting ROMS/Star Voyager (1982) (Imagic, Bob Smith) (720102-2B, IA3201P, EIX-01 1-04I) (PAL).bin 34% OK
 Extracting ROMS/Star Voyager (1983) (CCE) (C-818) [a].bin 3
 4% OK
 Extracting ROMS/Star Voyager (1983) (CCE) (C-818).bin 3
 4% OK
 Extracting ROMS/Star Voyager (Unknown) (PAL).bin 3
 4% OK
 Extracting ROMS/Star Wars - Jedi Arena (Paddle) (1983) (Parker Brothers, Rex Bradford) (931507) (PAL).bin 34% OK
 Extracting ROMS/Star Wars - Jedi Arena (Paddle) (1983) (Parker Brothers, Rex Bradford) (PB5000) (Prototype).bin 34% OK
 Extracting ROMS/Star Wars - Jedi Arena (Paddle) (1983) (Parker Brothers, Rex Bradford) (PB5000) ~.bin 34% OK
 Extracting ROMS/Star Wars - Return of the Jedi - Death Star Battle (Revenge of the Jedi - Game II) (1983) (Parker Brothers - JWDA, Todd Marshall, Robin McDaniel, Ray Miller) (931513) (PAL).bin 34% OK
 Extracting ROMS/Star Wars - Return of the Jedi - Death Star Battle (Revenge of the Jedi - Game II) (1983) (Parker Brothers - JWDA, Todd Marshall, Robin McDaniel, Ray Miller) (PB5060) ~.bin 34% OK
 Extracting ROMS/Star Wars - Return of the Jedi - Ewok Adventure (Revenge of the Jedi - Game I) (05-23-1983) (Parker Brothers, Larry Gelberg) (PB5065) (Prototype) ~.bin 34% OK
 Extracting ROMS/Star Wars - Return of the Jedi - Ewok Adventure (Revenge of the Jedi - Game I) (1983) (Parker Brothers, Larry Gelberg) (PB5065) (Prototype) (PAL).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (01-03-1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype) (4K).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (04-05-1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (12-05-1983) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype) (4K).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (12-15-1983) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype) (4K).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (12-23-1983) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype) (4K).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (PAL).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (Prototype).bin 34% OK
 Extracting ROMS/Star Wars - The Arcade Game (1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) ~.bin 34% OK

Extracting ROMS/Star Wars - The Empire Strikes Back (1982) (Parker Brothers, Rex Bradford, Sam Kjellman) (931501) (PAL).bin 34% OK
 Extracting ROMS/Star Wars - The Empire Strikes Back (1982) (Parker Brothers, Rex Bradford, Sam Kjellman) (PB5050) ~.bin 35% OK
 Extracting ROMS/Stargate (1984) (Atari, Bill Aspromonte, Andrew Fuchs) (CX26120) (PAL).bin 35% OK
 Extracting ROMS/Stargate (1984) (Atari, Bill Aspromonte, Andrew Fuchs) (CX26120) ~.bin 35% OK
 Extracting ROMS/Stargunner (1983) (Telesys, Alex Leavens) (1005) (PAL).bin 35% OK
 Extracting ROMS/Stargunner (1983) (Telesys, Alex Leavens) (1005) ~.bin 5% OK
 Extracting ROMS/StarMaster (1982) (Activision, Alan Miller) (AX-016) ~.bin 35% OK
 Extracting ROMS/StarMaster (Unknown) (PAL).bin 5% OK
 Extracting ROMS/StarMaster - Kommando Galaxis (1982) (Activision, Alan Miller - Ariola) (EAX-016, PAX-016 - 711 016-725) (PAL) [fixed].bin 35% OK
 Extracting ROMS/StarMaster - Kommando Galaxis (1982) (Activision, Alan Miller - Ariola) (EAX-016, PAX-016 - 711 016-725) (PAL).bin 35% OK
 Extracting ROMS/Steeplechase (1983) (Video Gems) (VG-03) (PAL) ~.bin 5% OK
 Extracting ROMS/Steeplechase (Paddle) (04-15-1980) (Sears Tele-Games, Jim Huether) (CX2614 - 49-75126) (Prototype).bin 35% OK
 Extracting ROMS/Steeplechase (Paddle) (1981) (Sears Tele-Games, Jim Huether) (CX2614 - 49-75126) ~.bin 35% OK
 Extracting ROMS/Stellar Track (Stella Trek) (1981) (Sears Tele-Games, Robert Zdybel) (CX2619 - 49-75159) ~.bin 35% OK
 Extracting ROMS/Sternkrieg (AKA Astrowar) (1983) (Video Game - Ariola) (SP-204) (PAL).bin 35% OK
 Extracting ROMS/Stone Age (1983) (CCE) (C-840) ~.bin 5% OK
 Extracting ROMS/Stopp die Gangster (AKA Gangster Alley) (1983) (Quelle) (377.943 6) (PAL).bin 35% OK
 Extracting ROMS/Strahlen der Teufelsvoegel (AKA Atlantis) (1983) (Quelle) (463.860 7) (PAL).bin 35% OK
 Extracting ROMS/Strategy X (1983) (Gakken) (010) (PAL).bin 5% OK
 Extracting ROMS/Strategy X (1983) (Konami) (RC 101-X 02) ~.bin 5% OK
 Extracting ROMS/Strawberry Shortcake - Musical Match-Ups (1983) (Parker Brothers, Dawn Stockbridge) (PB5910) (PAL).bin 35% OK
 Extracting ROMS/Strawberry Shortcake - Musical Match-Ups (1983) (Parker Brothers, Dawn Stockbridge) (PB5910) ~.bin 35% OK
 Extracting ROMS/Street Racer (Wheels) (Paddle) (1977) (Atari, Larry Kaplan) (CX2612, CX2612P) (PAL).bin 35% OK
 Extracting ROMS/Street Racer - Speedway II (Wheels) (Paddle) (1977) (Atari, Larry Kaplan - Sears) (CX2612 - 99804, 49-75103) ~.bin 35% OK
 Extracting ROMS/Stronghold (1983) (CommaVid, Joseph Biel) (CM-009) ~.bin 5% OK
 Extracting ROMS/Stunt Cycle (Paddle) (07-21-1980) (Atari, Robert C. Polaro) (CX2615 7) (Prototype) ~.bin 35% OK
 Extracting ROMS/Stunt Man (AKA Nightmare) (1983) (Panda) (105).bin 5% OK
 Extracting ROMS/Sub-Scan (Subterfuge) (1983) (SEGA) (002-01) ~.bin 5% OK
 Extracting ROMS/Sub-Scan (Unknown) (PAL).bin 5% OK
 Extracting ROMS/Submarine Commander (Seawolf 3) (1982) (Sears Tele-Games, Marilyn Churchill, Matthew L. Hubbard) (CX2647 - 49-75142) ~.bin 35% OK
 Extracting ROMS/Submarine Commander (Unknown) (PAL).bin 5% OK
 Extracting ROMS/Subterranea (Tarantula) (1983) (Imagic, Mark Klein) (720112-1A, 032 13) ~.bin 35% OK

Extracting ROMS/Subterranea (Tarantula) (1983) (Imagic, Mark Klein) (EIZ-003-04I) (PAL).bin 35% OK
 Extracting ROMS/Suicide Mission (Meteoroids) (1982) (Arcadia Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) (Prototype).bin 35% OK
 Extracting ROMS/Suicide Mission (Meteoroids) (1982) (Arcadia Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) ~.bin 35% OK
 Extracting ROMS/Suicide Mission (Meteoroids) (1982) (Starpath Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) (PAL).bin 35% OK
 Extracting ROMS/Suicide Mission (Meteoroids) (Preview) (1982) (Arcadia Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102).bin 35% OK
 Extracting ROMS/Suicide Mission (Meteoroids) (Preview) (1982) (Starpath Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) (PAL).bin 35% OK
 Extracting ROMS/Summer Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbrite) (80561-00250) (PAL).bin 35% OK
 Extracting ROMS/Summer Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbrite) (80561-00250) ~.bin 35% OK
 Extracting ROMS/Super Action Pak - Pitfall, Barnstorming, Grand Prix, Laser Blast (1988) (HES - Activision) (223) (PAL).bin 35% OK
 Extracting ROMS/Super Baseball (1988) (Atari, Mimi Nyden, Joseph Tung) (CX26152) (PAL).bin 35% OK
 Extracting ROMS/Super Baseball (1988) (Atari, Mimi Nyden, Joseph Tung) (CX26152).bin 35% OK
 Extracting ROMS/Super Baseball (AKA RealSports Baseball) (CCE).bin 3%
 5% OK
 Extracting ROMS/Super Box (AKA RealSports Boxing) (CCE).bin 3%
 5% OK
 Extracting ROMS/Super Breakout (Paddle) (1982 - 1981) (Atari, Carol Shaw, Nick 'San dy Maiwald' Turner - Sears) (CX2608 - 49-75165) [a].bin 35% OK
 Extracting ROMS/Super Breakout (Paddle) (1982 - 1981) (Atari, Carol Shaw, Nick 'San dy Maiwald' Turner - Sears) (CX2608 - 49-75165) ~.bin 35% OK
 Extracting ROMS/Super Breakout (Paddle) (1982 - 1981) (Atari, Carol Shaw, Nick 'San dy Maiwald' Turner) (CX2608) (PAL).bin 35% OK
 Extracting ROMS/Super Challenge Baseball (Hack) (32 in 1) (Bit Corporation) (R320).bin 35% OK
 Extracting ROMS/Super Challenge Baseball (Unknown) (PAL) [a].bin 3%
 5% OK
 Extracting ROMS/Super Challenge Baseball (Unknown) (PAL).bin 3%
 6% OK
 Extracting ROMS/Super Challenge Baseball - Baseball (Big League Baseball) (1982) (M Network - INTV - APh Technological Consulting, David Rolfe) (MT5665) ~.bin 36% OK
 Extracting ROMS/Super Challenge Football - Football (Pro Football) (1982) (M Network - INTV - APh Technological Consulting, Ken Smith) (MT5658) ~.bin 36% OK
 Extracting ROMS/Super Cobra (1983) (Parker Brothers - Roklan, Paul Crowley, Bob Curtiss) (931505) (PAL).bin 36% OK
 Extracting ROMS/Super Cobra (1983) (Parker Brothers - Roklan, Paul Crowley, Bob Curtiss) (PB5320) ~.bin 36% OK
 Extracting ROMS/Super Cobra (1983) (Parker Brothers, Mike Brodie) (PB5320) (Prototype).bin 36% OK
 Extracting ROMS/Super Ferrari (AKA Enduro) (1983) (Rainbow Vision - Suntek) (SS-01 1) (PAL).bin 36% OK
 Extracting ROMS/Super Football (1988) (Atari, Douglas Neubauer) (CX26154) ~.bin 36% OK
 Extracting ROMS/Super Football (1988) (Atari, Douglas Neubauer) (CX26154, CX26154P) (PAL).bin 36% OK
 Extracting ROMS/Super Futebol (AKA RealSports Football) (CCE).bin 3%
 6% OK
 Extracting ROMS/Super Futebol (AKA RealSports Soccer) (CCE).bin 3%
 6% OK
 Extracting ROMS/Super Hit Pak - River Raid, Sky Jinks, Grand Prix, Fishing Derby, C heckers (HES - Activision) (PAL).bin 36% OK
 Extracting ROMS/Super Kung-Fu (1983) (Xonox - K-Tel Software - VSS, Robert Weatherby) (6230, 6250) (PAL).bin 36% OK

Extracting ROMS/Super Soccer (AKA RealSports Soccer) (Digivision).bin	3
6% OK	
Extracting ROMS/Super Tenis (AKA RealSports Tennis) (VGS).bin	3
6% OK	
Extracting ROMS/Super Tennis (AKA RealSports Tennis) (1983) (CCE) (C-1005).bin	
36% OK	
Extracting ROMS/Super Tennis (AKA RealSports Tennis) (1983) (Tron).bin	3
6% OK	
Extracting ROMS/Super Voleyball (AKA RealSports Volleyball) (CCE).bin	3
6% OK	
Extracting ROMS/Super-Cowboy beim Rodeo (AKA Stampede) (1983) (Quelle) (874.254 6) (PAL).bin	
36% OK	
Extracting ROMS/Super-Ferrari (AKA Enduro) (1983) (Quelle) (402.272 9) (PAL).bin	
36% OK	
Extracting ROMS/Super-Ferrari (AKA Enduro) (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin	
36% OK	
Extracting ROMS/Super-Ferrari (AKA Enduro) (Unknown).bin	3
6% OK	
Extracting ROMS/Supercharger BIOS (1982) (Arcadia Corporation) (PAL).bin	3
6% OK	
Extracting ROMS/Supercharger BIOS (1982) (Arcadia Corporation) ~.bin	3
6% OK	
Extracting ROMS/Superman (1979) (Atari, John Dunn - Sears) (CX2631 - 49-75152) [fix ed] ~.bin	
36% OK	
Extracting ROMS/Superman (1979) (Atari, John Dunn - Sears) (CX2631 - 49-75152) ~.bin	
36% OK	
Extracting ROMS/Superman (1979) (Atari, John Dunn) (CX2631, CX2631P) (PAL).bin	
36% OK	
Extracting ROMS/Superman (Unknown) (PAL).bin	3
6% OK	
Extracting ROMS/Surf's Up (Joyboard) (1983) (Amiga - Video Soft, Chip Curry) (3125) (Prototype) [a1].bin	
36% OK	
Extracting ROMS/Surf's Up (Joyboard) (1983) (Amiga - Video Soft, Chip Curry) (3125) (Prototype) [a2].bin	
36% OK	
Extracting ROMS/Surf's Up (Joyboard) (1983) (Amiga - Video Soft, Chip Curry) (3125) (Prototype) ~.bin	
36% OK	
Extracting ROMS/Surfer's Paradise - But Danger Below! (1983) (Video Gems) (VG-02) (PAL) ~.bin	
36% OK	
Extracting ROMS/Surround (1977) (Blockade) (Atari, Alan Miller) (CX2641, CX2641P) (PAL).bin	
36% OK	
Extracting ROMS/Surround (32 in 1) (1988) (Atari, Alan Miller) (CX26163P) (PAL).bin	
36% OK	
Extracting ROMS/Surround (32 in 1) (Bit Corporation) (R320).bin	3
6% OK	
Extracting ROMS/Surround - Chase (Blockade) (1977) (Atari, Alan Miller - Sears) (CX 2641 - 99807, 49-75105) ~.bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (1 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) (PAL).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (1 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) (PAL).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) ~.bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (2 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) (PAL).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (2 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (3 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) (PAL).bin	
36% OK	
Extracting ROMS/Survival Island (Jungle Raid) (3 of 3) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401).bin	
36% OK	
Extracting ROMS/Survival Run (1983) (Data Age) (Prototype) ~.bin	3
6% OK	

Extracting ROMS/Survival Run (Cosmic Commander) (1983) (Milton Bradley Company - Renaissance Technology, Ty Roberts) (4362) ~.bin 37% OK
 Extracting ROMS/Sweat! - The Decathlon Game (1 of 3) (Paddle) (1983) (Starpath Corporation, Stephen H. Landrum, Scott Nelson) (13) (Prototype) ~.bin 37% OK
 Extracting ROMS/Sweat! - The Decathlon Game (2 of 3) (Paddle) (1983) (Starpath Corporation, Stephen H. Landrum, Scott Nelson) (13) (Prototype).bin 37% 0
 K
 Extracting ROMS/Sweat! - The Decathlon Game (3 of 3) (Paddle) (1983) (Starpath Corporation, Stephen H. Landrum, Scott Nelson) (13) (Prototype).bin 37% 0
 K
 Extracting ROMS/Sword of Saros (1983) (Starpath Corporation, Stephen H. Landrum, John Leupp) (11) (AR-4201) (PAL).bin 37% OK
 Extracting ROMS/Sword of Saros (1983) (Starpath Corporation, Stephen H. Landrum, John Leupp) (11) (AR-4201) ~.bin 37% OK
 Extracting ROMS/Swordfight (Sword, Swordfighting) (1983) (Intellivision Productions - M Network, Patricia Lewis Du Long, Stephen Tatsumi) ~.bin 37% OK
 Extracting ROMS/SwordQuest - EarthWorld (Adventure I, SwordQuest I - EarthWorld) (1 982) (Atari, Dan Hitchens, Mimi Nyden) (CX2656) (PAL).bin 37% OK
 Extracting ROMS/SwordQuest - EarthWorld (Adventure I, SwordQuest I - EarthWorld) (1 982) (Atari, Dan Hitchens, Mimi Nyden) (CX2656) (Prototype).bin 37% 0
 K
 Extracting ROMS/SwordQuest - EarthWorld (Adventure I, SwordQuest I - EarthWorld) (1 982) (Atari, Dan Hitchens, Mimi Nyden) (CX2656) ~.bin 37% OK
 Extracting ROMS/SwordQuest - FireWorld (Adventure II, SwordQuest II - FireWorld) (1 983) (Atari, Tod Frye, Mimi Nyden) (CX2657) (PAL).bin 37% OK
 Extracting ROMS/SwordQuest - FireWorld (Adventure II, SwordQuest II - FireWorld) (1 983) (Atari, Tod Frye, Mimi Nyden) (CX2657) ~.bin 37% OK
 Extracting ROMS/SwordQuest - FireWorld Contest Edition (1984) (Atari, Tod Frye, Mimi Nyden) (CX2657).bin 37% OK
 Extracting ROMS/SwordQuest - WaterWorld (1983) (Atari, Tod Frye) (CX2671) ~.bin 37% OK
 Extracting ROMS/Tac-Scan (Canal 3 - Intellivision).bin 3
 7% OK
 Extracting ROMS/Tac-Scan (Hack) (32 in 1) (Bit Corporation) (R320).bin 3
 7% OK
 Extracting ROMS/Tac-Scan (Paddle) (1983) (SEGA, Jeff Lorenz) (001-01) ~.bin 3
 37% OK
 Extracting ROMS/Tac-Scan (Unknown) (PAL).bin 3
 7% OK
 Extracting ROMS/Tank Brigade (AKA Phantom Tank) (1983) (Panda) (101).bin 3
 7% OK
 Extracting ROMS/Tanks But No Tanks (AKA Phantom Tank) (1983) (ZiMAG - Emag - Vidco) (707-111 - GN-030).bin 37% OK
 Extracting ROMS/Tanks War (AKA Phantom Tank) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83135) (PAL).bin 37% OK
 Extracting ROMS/Tapeworm (1982) (Spectravision - Spectravideo) (SA-204) (PAL).bin 37% OK
 Extracting ROMS/Tapeworm (1982) (Spectravision - Spectravideo) (SA-204) ~.bin 37% OK
 Extracting ROMS/Tapeworm (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 37% OK
 Extracting ROMS/Tapper (1984) (SEGA - Beck-Tech, Steve Beck) (010-01) ~.bin 37% OK
 Extracting ROMS/Targ (1983) (CBS Electronics - VSS) (80110) (Prototype).bin 37% OK
 Extracting ROMS/Target Practice (Carnival) (AKA Carnival) (1983) (CCE) (C-833) [a].bin 37% OK
 Extracting ROMS/Target Practice (Carnival) (AKA Carnival) (1983) (CCE) (C-833).bin 37% OK
 Extracting ROMS/Task Force (AKA Gangster Alley) (1987) (Froggo) (FG1003).bin 37% OK
 Extracting ROMS/Tax Avoiders (1986) (American Videogame - Dunhill Electronics, Darren Wagner, Todd Clark Holm, John Simonds) ~.bin 37% OK

Extracting ROMS/Taz (Tazz) (06-15-1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype) (PAL).bin 37% OK
 Extracting ROMS/Taz (Tazz) (07-13-1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype).bin 37% OK
 Extracting ROMS/Taz (Tazz) (07-15-1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype).bin 37% OK
 Extracting ROMS/Taz (Tazz) (1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype) [a].bin 37% OK
 Extracting ROMS/Taz (Tazz) (1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype).bin 37% OK
 Extracting ROMS/Taz (Tazz) (1984) (Atari, Jerome Domurat, Steve Woita) (CX2699) ~.bin 37% OK
 Extracting ROMS/Teddy Apple (AKA Open, Sesame!) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83137) (PAL).bin 37% OK
 Extracting ROMS/Telepathy (Mindlink Controller) (1983) (Atari, Dan Oliver) (Prototype) ~.bin 37% OK
 Extracting ROMS/Teller-Jonglieren! (AKA Dancing Plate) (1983) (Quelle) (685.996 1) (PAL).bin 37% OK
 Extracting ROMS/Tempest (01-05-1984) (Atari, Michael Kosaka) (CX2687) (Prototype) ~.bin 37% OK
 Extracting ROMS/Tennis (1981) (Activision, Alan Miller - Ariola) (EAG-007, EAG-007-04I, PAG-007 - 711 007-720) (PAL).bin 37% OK
 Extracting ROMS/Tennis (1983) (CCE) (C-858) (4K).bin 3%
 7% OK
 Extracting ROMS/Tennis (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 37% OK
 Extracting ROMS/Tennis (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 3%
 7% OK
 Extracting ROMS/Tennis (Canal 3 - Intellivision) (4K).bin 3%
 7% OK
 Extracting ROMS/Tennis (Dactari - Milmar).bin 3%
 7% OK
 Extracting ROMS/Tennis (Fotomania).bin 3%
 7% OK
 Extracting ROMS/Tennis (Hack) (32 in 1) (Bit Corporation) (R320).bin 3%
 7% OK
 Extracting ROMS/Tennis (Hack) (Unknown) (PAL).bin 3%
 7% OK
 Extracting ROMS/Tennis (Star Game) (007).bin 3%
 7% OK
 Extracting ROMS/Tennis (Tennis Game) (AKA Tennis) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83107) (PAL) (4K).bin 37% OK
 Extracting ROMS/Tennis (Unknown) (PAL).bin 3%
 7% OK
 Extracting ROMS/Tennis (Zirok).bin 3%
 7% OK
 Extracting ROMS/Tennis - Le Tennis (1981) (Activision, Alan Miller) (AG-007, CAG-007) ~.bin 37% OK
 Extracting ROMS/Texas Chainsaw Massacre, The (1982) (Wizard Video Games, Bob Davis, Robert H. O'Neil) (Prototype) ~.bin 37% OK
 Extracting ROMS/Texas Chainsaw Massacre, The (1983) (Wizard Video Games - VSS, Ed Salvo) (008) ~.bin 37% OK
 Extracting ROMS/Threshold (1982) (Tigervision, Warren Schwader - Teldec - Prism) (7-003 - 3.60003 VE) (PAL).bin 37% OK
 Extracting ROMS/Threshold (1982) (Tigervision, Warren Schwader) (7-003) (Prototype).bin 37% OK
 Extracting ROMS/Threshold (1982) (Tigervision, Warren Schwader) (7-003) ~.bin 3%
 37% OK
 Extracting ROMS/Threshold (Unknown).bin 3%
 8% OK
 Extracting ROMS/Thunderground (Canal 3 - Intellivision) (C 3051).bin 3%
 8% OK
 Extracting ROMS/Thunderground (Hack) (Unknown) (PAL).bin 3%
 8% OK

Extracting ROMS/Thunderground (Hack) (Unknown) [a].bin	3
8% OK	
Extracting ROMS/Thunderground (Hack) (Unknown).bin	3
8% OK	
Extracting ROMS/Thunderground (Underground) (1983) (SEGA, Jeff Lorenz) (003-01) ~.bin	
in 38% OK	
Extracting ROMS/Thwocker (04-09-1984) (Activision, Charlie Heath) (Prototype) ~.bin	
38% OK	
Extracting ROMS/Time Machine (AKA Asteroid Fire) (1983) (Goliath - Hot Shot) (83-112) (PAL).bin	
38% OK	
Extracting ROMS/Time Pilot (1983) (Coleco - Woodside Design Associates, Harley H. Puthuff Jr.) (2663) ~.bin	
38% OK	
Extracting ROMS/Time Pilot (1983) (Edu Games - Edu Juegos) (PAL).bin	3
8% OK	
Extracting ROMS/Time Pilot (1983) (Rentacom).bin	3
8% OK	
Extracting ROMS/Time Race (AKA Space Jockey) (1983) (Goliath - Hot Shot) (83-212) (PAL).bin	
38% OK	
Extracting ROMS/Time Race (AKA Space Jockey) (1983) (Rainbow Vision - Suntek - Sunt Eck Corporation) (SS-001) (PAL).bin	
38% OK	
Extracting ROMS/Time Race (AKA Time Warp) (Funvision - Fund. International Co.) (PAL).bin	
38% OK	
Extracting ROMS/Time Warp (1982) (Funvision - Fund. International Co.) (PAL) ~.bin	
38% OK	
Extracting ROMS/Time Warp (1983) (CCE) (C-845).bin	3
8% OK	
Extracting ROMS/Time Warp (Unknown) (PAL).bin	3
8% OK	
Extracting ROMS/Time Warp (Unknown).bin	3
8% OK	
Extracting ROMS/Time Warp (Zellers).bin	3
8% OK	
Extracting ROMS>Title Match Pro Wrestling (1987) (Absolute Entertainment, Alex DeMeo) (AG-041-04) ~.bin	
38% OK	
Extracting ROMS>Title Match Pro Wrestling - Pro Wrestling (1987) (Absolute Entertainment, Alex DeMeo) (EAZ-041-04I) (PAL).bin	
38% OK	
Extracting ROMS/Tom Boy (AKA Pitfall!) (1983) (Rainbow Vision - Suntek) (SS-005) (PAL).bin	
38% OK	
Extracting ROMS/Tom Boy (AKA Pitfall!) (Unknown) [a].bin	3
8% OK	
Extracting ROMS/Tom Boy (AKA Pitfall!) (Unknown).bin	3
8% OK	
Extracting ROMS/Tom's Eierjagd (AKA Pumuckl at the Farm House) (1983) (Quelle) (731.503 9) (PAL).bin	
38% OK	
Extracting ROMS/Tomarc the Barbarian (Thundarr the Barbarian) (1983) (99007, 6240) (Xonox - K-Tel Software - Product Guild, Anthony R. Henderson) ~.bin	3
8% OK	
Extracting ROMS/Tomcat - The F-14 Fighter Simulator (1988) (Absolute Entertainment, Dan Kitchen) (AK-046-04) ~.bin	
38% OK	
Extracting ROMS/Tooth Protectors (1983) (Camelot - DSD, Michael Doherty, Clyde Hager - Johnson & Johnson) ~.bin	
38% OK	
Extracting ROMS/Top Gun - Air Patrol (AKA Air Raiders) (1983) (Quelle - Otto Versand) (626.502 9 - 746381) (PAL).bin	
38% OK	
Extracting ROMS/Topy (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co.).bin	
38% OK	
Extracting ROMS/Towering Inferno (1982) (U.S. Games Corporation - Western Technologies, Jeff Corsiglia, Paul Allen Newell, Tom Sloper) (VC1009) ~.bin	
OK	38%
Extracting ROMS/Towering Inferno (Unknown) (PAL) [a].bin	3
8% OK	
Extracting ROMS/Towering Inferno (Unknown) (PAL).bin	3
8% OK	
Extracting ROMS/Track and Field (Los Angeles 1984 Games) (Track & Field Controller) (1984) (Atari - GCC, Jaques Hugon, Seth Lipkin) (CX26125, CX26127) ~.bin	
OK	3

```

8%      OK
Extracting ROMS/Treasure Below (1983) (Video Gems) (VG-05) (PAL) ~.bin          3
8%      OK
Extracting ROMS/Treasure Island (AKA Treasure Discovery) (1983) (Suntek) (SS-026)
(PAL).bin      38%      OK
Extracting ROMS/Trick Shot (1982) (Imagic, Dennis Koble) (720000-100, 720100-1B, IA
3000, IA3000C) ~.bin      38%      OK
Extracting ROMS/Trick Shot (1982) (Imagic, Dennis Koble) (720100-2B, IA3000P) (PA
L).bin      38%      OK
Extracting ROMS/Trick Shot (Hack) (32 in 1) (Bit Corporation) (R320).bin          3
8%      OK
Extracting ROMS/TRON - Deadly Discs (TRON Joystick) (1983) (M Network - INTV - APh
Technological Consulting, Jeff Ronne, Brett Stutz) (MT5662) ~.bin      38%
OK
Extracting ROMS/Tuby Bird (AKA Dolphin) (1983) (Rainbow Vision - Suntek) (SS-020)
(PAL).bin      38%      OK
Extracting ROMS/Tuby Bird (AKA Dolphin) (Unknown) (PAL).bin          3
8%      OK
Extracting ROMS/Tunnel Runner (Black Box) (1983) (CBS Electronics, Richard K. Balas
ka Jr., Andy Frank, Stuart Ross) (4L 2520 5000) (Prototype).bin      38%      0
K
Extracting ROMS/Tunnel Runner (Black Box) (1983) (CBS Electronics, Richard K. Balas
ka Jr., Andy Frank, Stuart Ross) (4L 2520 5000) ~.bin      38%      OK
Extracting ROMS/Turbo (1982) (Coleco - Product Guild - GMA, Michael Green, Anthony
R. Henderson, Gary Littleton) (2455) (Prototype) ~.bin      38%      OK
Extracting ROMS/Turmoil (1982) (20th Century Fox Video Games - Sirius Software, Mar
k Turmell) (11007) ~.bin      38%      OK
Extracting ROMS/Turmoil (Unknown) (PAL).bin          3
8%      OK
Extracting ROMS/Turmoil (Zellers).bin          3
8%      OK
Extracting ROMS/Turtle Race (AKA Freeway) (4 Game in One) (1983) (Bit Corporation)
(CP405) (PAL).bin      38%      OK
Extracting ROMS/Tutankham (1983) (Parker Brothers, Dave Engman, Dawn Stockbridge)
(931509) (PAL).bin      38%      OK
Extracting ROMS/Tutankham (1983) (Parker Brothers, Dave Engman, Dawn Stockbridge)
(PB5340) ~.bin      39%      OK
Extracting ROMS/UFI und sein gefaehrlicher Einsatz (AKA Go Go Home) (1983) (Quelle)
(732.174 8) (PAL).bin      39%      OK
Extracting ROMS/UFO (AKA Space Jockey) (32 in 1) (1988) (Atari) (CX26163P) (PAL).bi
n      39%      OK
Extracting ROMS/UFO Patrol (AKA X'Mission) (1983) (Suntek) (SS-031) (PAL).bin
      39%      OK
Extracting ROMS/Ungeheuer der Tiefe (AKA Skindiver) (1983) (Quelle) (719.013 5) (PA
L).bin      39%      OK
Extracting ROMS/Universal Chaos (AKA Targ) (1988) (Telegames - VSS) (7062 A305) (PA
L).bin      39%      OK
Extracting ROMS/Universal Chaos (AKA Targ) (1988) (Telegames - VSS) (7062 A305) (Pr
ototype).bin      39%      OK
Extracting ROMS/Universal Chaos (AKA Targ) (1988) (Telegames - VSS) (7062 A305) ~.b
in      39%      OK
Extracting ROMS/Unknown Activision Game (10-22-1982) (Activision) (Prototype).bin
      39%      OK
Extracting ROMS/Unknown Activision Game (10-29-1982) (Activision) (Prototype) ~.bin
      39%      OK
Extracting ROMS/Unknown Datatech Game (2600 Screen Search Console) (Jone Yuan Telep
honic Enterprise Co) ~.bin      39%      OK
Extracting ROMS/Up 'n Down (1984) (SEGA - Beck-Tech, Steve Beck, Phat Ho) (009-01)
~.bin      39%      OK
Extracting ROMS/Vanguard (1982) (Atari - GCC, Dave Payne) (CX2669) (Prototype).bin
      39%      OK
Extracting ROMS/Vanguard (1983) (Atari - GCC, Dave Payne) (CX2669) ~.bin          3
9%      OK
Extracting ROMS/Vanguard (1983) (Atari - GCC, Dave Payne) (CX2669, CX2669P) (PAL).b

```

```

in      39%      OK
Extracting ROMS/Vanguard (CCE).bin                                3
9%      OK
Extracting ROMS/Vanguard (Rentacom).bin                             3
9%      OK
Extracting ROMS/Vanguard (Unknown) (PAL).bin                         3
9%      OK
Extracting ROMS/Vanguard (VGS).bin                                  3
9%      OK
Extracting ROMS/VCS Draw Demo (Joe Gaucher) ~.bin                  3
9%      OK
Extracting ROMS/Venetian Blinds Demo (1981) (Activision, David Crane, Bob Whitehead) ~.bin 39%      OK
Extracting ROMS/Venture (1982) (Coleco, Joseph Biel) (2457) (Prototype) (2K).bin 39%      OK
Extracting ROMS/Venture (1982) (Coleco, Joseph Biel) (2457) ~.bin                      3
9%      OK
Extracting ROMS/Venture (1983) (CBS Electronics, Joseph Biel) (4L1802, 4L1803, 4L1804, 4L2278) (PAL).bin 39%      OK
Extracting ROMS/Venture (1987) (Atari) (CX26145).bin                     3
9%      OK
Extracting ROMS/Viagem Espacial (AKA Star Voyager) (Dismac).bin          3
9%      OK
Extracting ROMS/Video Checkers - Atari Video Checkers (1980) (Atari, Carol Shaw) (CX2636, CX2636P) (PAL).bin 39%      OK
Extracting ROMS/Video Checkers - Checkers - Atari Video Checkers (1980) (Atari, Carol Shaw - Sears) (CX2636 - 49-75156) ~.bin 39%      OK
Extracting ROMS/Video Chess (Computer Chess) (1979) (Atari, Larry Wagner, Bob Whitehead - Sears) (CX2645 - 49-75181) ~.bin 39%      OK
Extracting ROMS/Video Chess (Computer Chess) (1979) (Atari, Larry Wagner, Bob Whitehead) (CX2645, CX2645P) (PAL).bin 39%      OK
Extracting ROMS/Video Chess (Unknown) (PAL).bin                           3
9%      OK
Extracting ROMS/Video Chess (Unknown).bin                               3
9%      OK
Extracting ROMS/Video Jogger (Foot Craz) (1983) (Exus Corporation) ~.bin 3
9%      OK
Extracting ROMS/Video Life (1984) (CommaVid, John Bronstein) (CM-002) [higher sound s] ~.bin 39%      OK
Extracting ROMS/Video Life (1984) (CommaVid, John Bronstein) (CM-002) ~.bin 39%      OK
Extracting ROMS/Video Olympics (Paddle) (1977) (Atari, Joe Decuir) (CX2621, CX2621P) (PAL).bin 39%      OK
Extracting ROMS/Video Olympics - Pong Sports (Paddle) (1977) (Atari, Joe Decuir - Sears) (CX2621 - 99806, 6-99806, 49-75104) ~.bin 39%      OK
Extracting ROMS/Video Pinball (1981) (Atari, Bob Smith) (CX2648) (PAL).bin 39%      OK
Extracting ROMS/Video Pinball (Hack) (32 in 1) (Bit Corporation) (R320).bin 39%      OK
Extracting ROMS/Video Pinball (Unknown) (PAL).bin                         3
9%      OK
Extracting ROMS/Video Pinball (Unknown).bin                            3
9%      OK
Extracting ROMS/Video Pinball - Arcade Pinball (1981) (Atari, Bob Smith - Sears) (CX2648 - 49-75161) ~.bin 39%      OK
Extracting ROMS/Video Reflex (Foot Craz) (1983) (Exus Corporation) [no roman numbers] ~.bin 39%      OK
Extracting ROMS/Video Reflex (Foot Craz) (1983) (Exus Corporation) ~.bin                      3
9%      OK
Extracting ROMS/Vogel Flieh (AKA Dolphin) (1983) (Quelle) (465.302 8) (PAL).bin 39%      OK
Extracting ROMS/Volleyball (AKA RealSports Volleyball) (1983) (Digitel).bin 39%      OK
Extracting ROMS/Volleyball (AKA RealSports Volleyball) (Dactari - Milmar).bin

```

39%	OK	
Extracting ROMS/Volleyball (AKA RealSports Volleyball) (Double-Game Package) (1983) (Otto Versand) (781698) (PAL).bin	39%	OK
Extracting ROMS/Volleyball (AKA RealSports Volleyball) (Fotomania).bin		3
9%	OK	
Extracting ROMS/Volleyball (AKA RealSports Volleyball) (Robby).bin		3
9%	OK	
Extracting ROMS/Vom Himmel durch die Hoelle (AKA Parachute) (1983) (Quelle) (719.941 7) (PAL).bin	39%	OK
Extracting ROMS/Vulture Attack (AKA Condor Attack) (1982) (K-Tel Vision) (PAL).bin	39%	OK
Extracting ROMS/Vulture Attack (AKA Condor Attack) (1982) (K-Tel Vision).bin	39%	OK
Extracting ROMS/Video Cube (AKA Atari Video Cube) (CCE).bin		3
9%	OK	
Extracting ROMS/Wabbit (1982) (Apollo, Ban Tran) (AP-2010) ~.bin		3
9%	OK	
Extracting ROMS/Wachroboter jagt Jupy (AKA Keystone Kapers) (1983) (Quelle) (715.853 5) (PAL).bin	39%	OK
Extracting ROMS/Walker (AKA Guignol) (1983) (Suntek) (SS-032) (PAL).bin		3
9%	OK	
Extracting ROMS/Wall Ball (1983) (Avalon Hill, Duncan Scott) (5003002) ~.bin	39%	OK
Extracting ROMS/Wall Break (1983) (Home Vision - Gem International Corporation - VD I) (VCS83114) (PAL) ~.bin	39%	OK
Extracting ROMS/Wall Break (Unknown).bin		3
9%	OK	
Extracting ROMS/Wall Defender (AKA Wall Break) (HES) (PAL).bin		4
0%	OK	
Extracting ROMS/Wall-Defender (AKA Wall Break) (1983) (Bomb - Onbase) (CA285) (PA L).bin	40%	OK
Extracting ROMS/Wall-Defender (AKA Wall Break) (1983) (Bomb - Onbase) (CA285).bin	40%	OK
Extracting ROMS/War 2000 (AKA Astrowar) (1983) (Home Vision - Gem International Corporation - VDI) (VCS83102) (PAL).bin	40%	OK
Extracting ROMS/Warlords (Kings in the Corner) (Paddle) (1981) (Atari, Carla Meninsky - Sears) (CX2610 - 49-75127) ~.bin	40%	OK
Extracting ROMS/Warlords (Kings in the Corner) (Paddle) (1981) (Atari, Carla Meninsky) (CX2610) (PAL).bin	40%	OK
Extracting ROMS/Warplock (Paddle) (1982) (Data Age) (DA1002) ~.bin		4
0%	OK	
Extracting ROMS/Warplock (Paddle) (1983) (Gameworks) (133-002) (PAL).bin		4
0%	OK	
Extracting ROMS/Weltraumtunnel (AKA Innerspace) (1983) (Quelle) (292.651 7) (PAL).bin	40%	OK
Extracting ROMS/Westward Ho (AKA Custer's Revenge) (1982) (PlayAround - JHM) (206) (PAL).bin	40%	OK
Extracting ROMS/Wilma Wanderer (AKA Lilly Adventure) (1983) (ITT Family Games) (PAL).bin	40%	OK
Extracting ROMS/Wing War (Flap!) (1983) (Imagic, Michael Greene) (EIZ-002-04I) (PAL) ~.bin	40%	OK
Extracting ROMS/Wings (06-03-1983) (CBS Electronics, Stuart Ross) (Prototype) ~.bin	40%	OK
Extracting ROMS/Wings (10-10-1983) (CBS Electronics, Stuart Ross) (Prototype) (PAL).bin	40%	OK
Extracting ROMS/Winter Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbreite) (80561-00251) (PAL).bin	40%	OK
Extracting ROMS/Winter Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbreite) (80561-00251) ~.bin	40%	OK
Extracting ROMS/Winterjagd (AKA Ski Hunt) (1983) (Quelle) (343.073 3) (PAL).bin	40%	OK
Extracting ROMS/Wizard (1980) (Atari, Chris Crawford) (Prototype) [a].bin	40%	OK
Extracting ROMS/Wizard (1980) (Atari, Chris Crawford) (Prototype) ~.bin		4

```

0%      OK
Extracting ROMS/Wizard of Wor (1982) (CBS Electronics - Roklan, Joe Hellesen, Joe W
agner) (4L1720, 4L1721, 4L1722, 4L2276) (PAL).bin          40%      OK
Extracting ROMS/Wizard of Wor (1982) (CBS Electronics - Roklan, Joe Hellesen, Joe W
agner) (M8774, M8794) (Prototype).bin          40%      OK
Extracting ROMS/Wizard of Wor (1982) (CBS Electronics - Roklan, Joe Hellesen, Joe W
agner) (M8774, M8794) ~.bin          40%      OK
Extracting ROMS/Word Zapper (Unknown) (PAL) [a].bin          4
0%      OK
Extracting ROMS/Word Zapper (Unknown) (PAL).bin          4
0%      OK
Extracting ROMS/Word Zapper (Unknown).bin          4
Extracting ROMS/Word Zapper (Word Grabber) (1982) (U.S. Games Corporation - Vidtec
- JWDA, Todd Marshall, Henry Will IV) (VC1003) ~.bin          40%      OK
Extracting ROMS/Words-Attack (1983) (Sancho - Tang's Electronic Co.) (Prototype) (P
AL) ~.bin          40%      OK
Extracting ROMS/World End (AKA The End of the World) (1983) (Home Vision - Gem Inte
rnational Corporation - VDI) (VCS83109) (PAL).bin          40%      OK
Extracting ROMS/Worm War I (1982) (20th Century Fox Video Games - Sirius Software,
David Lubar) (11001) ~.bin          40%      OK
Extracting ROMS/Worm War I (1983) (CCE) (C-843).bin          4
0%      OK
Extracting ROMS/Worm War I (Unknown) (PAL) [a].bin          4
Extracting ROMS/Worm War I (Unknown) (PAL).bin          4
0%      OK
Extracting ROMS/Wuestenschlacht (AKA Chopper Command) (1983) (Quelle) (262.794 1)
(PAL).bin          40%      OK
Extracting ROMS/X'Mission (Unknown) (PAL).bin          4
0%      OK
Extracting ROMS/X-Man (1983) (Universal Gamex Corporation, Miguel Castillo, H.K. Po
on) (GX-001) (PAL).bin          40%      OK
Extracting ROMS/X-Man (1983) (Universal Gamex Corporation, Miguel Castillo, H.K. Po
on) (GX-001) ~.bin          40%      OK
Extracting ROMS/Xenophobe (1991) (Atari) (CX26172) (PAL).bin          4
0%      OK
Extracting ROMS/Xenophobe (1991) (Atari) (CX26172) ~.bin          4
0%      OK
Extracting ROMS/Xevious (01-18-1984) (Atari, Tod Frye) (CX2695) (Prototype) ~.bin
40%      OK
Extracting ROMS/Xevious (05-25-1983) (Atari, Tod Frye) (CX2695) (Prototype).bin
40%      OK
Extracting ROMS/Xevious (08-02-1983) (Atari, Tod Frye) (CX2695) (Prototype).bin
40%      OK
Extracting ROMS/Xevious (CCE).bin          4
0%      OK
Extracting ROMS/Yars' Revenge (Canal 3 - Intellivision).bin          4
0%      OK
Extracting ROMS/Yars' Revenge (Time Freeze) (09-01-81) (Atari, Howard Scott Warshaw
- Sears) (CX2655 - 49-75167) (Prototype).bin          40%      OK
Extracting ROMS/Yars' Revenge (Time Freeze) (1982) (Atari, Howard Scott Warshaw - S
ears) (CX2655 - 49-75167) ~.bin          40%      OK
Extracting ROMS/Yars' Revenge (Time Freeze) (1982) (Atari, Howard Scott Warshaw) (C
X2655, CX2655P) (PAL).bin          40%      OK
Extracting ROMS/Yars' Revenge (Unknown) (PAL).bin          4
0%      OK
Extracting ROMS/Year 1999, The (AKA Condor Attack) (1983) (Rainbow Vision - Suntek)
(SS-008) (PAL).bin          40%      OK
Extracting ROMS/Z-Tack (AKA Base Attack) (1983) (Bomb - Onbase) (CA283) (PAL).bin
40%      OK
Extracting ROMS/Z-Tack (AKA Base Attack) (1983) (Bomb - Onbase) (CA283).bin
41%      OK
Extracting ROMS/Zaxxon (1983) (CBS Electronics) (4L1784, 4L1786, 4L1787, 4L2277) (P

```

```

AL).bin          41%      OK
Extracting ROMS/Zaxxon (1983) (Coleco) (2454) ~.bin                         4
1%      OK
Extracting ROMS/Zaxxon (Unknown) (PAL).bin                                     4
1%      OK
Extracting ROMS/Zoo Fun (AKA Pumuckl at the Zoo) (1983) (Suntek) (SS-027) (PAL).bin
    41%      OK
Extracting ROMS/Zoo Keeper Sounds (1984) (Atari, Christopher H. Omarzu, Robert Viei
ra) (CX26121) (Prototype) ~.bin           41%      OK
Creating   HC ROMS                                         OK
Creating   HC ROMS/BY ALPHABET                                OK
Extracting HC ROMS/BY ALPHABET/===== ROM HUNTER'S HARMONY CART ORIGINAL 1977-199
2 VCS ROMS COLLECTION V12 =====.txt        41%      OK
Creating   HC ROMS/BY ALPHABET/A-G                               OK
Extracting HC ROMS/BY ALPHABET/A-G/128 in 1 Game Select ROM.bin               4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/208 in 1 Game Select ROM (PAL).bin         4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/3-D Genesis (Prototype).bin                 4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/3-D Ghost Attack (Prototype).bin            4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/3-D Havoc (Prototype).bin                  4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/3-D Tic-Tac-Toe.bin                      4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/3-D Zapper (Prototype).bin                 4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Acid Drop (PAL).bin                      4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Actionauts.bin                           4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Activision Decathlon, The [fixed].bin       4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Activision Decathlon, The.bin              4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Adventure.bin                            4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Adventures of TRON.bin                   4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Air Raid (PAL).bin                        4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Air Raiders.bin                          4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Air-Sea Battle - Target Fun.bin           4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Airlock.bin                            4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Alien.bin                             4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Alligator People (Prototype).bin          4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Alpha Beam with Ernie.bin                4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Amidar.bin                           4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/AndroMan on the Moon (Prototype).bin       4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Aquaventure (Prototype).bin                4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Arkyology (Prototype).bin                 4
1%      OK
Extracting HC ROMS/BY ALPHABET/A-G/Armor Ambush.bin                         4
1%      OK

```

Extracting HC ROMS/BY ALPHABET/A-G/Artillery Duel.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Asteroid Fire (PAL).bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Asteroids [no copyright].bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Asteroids.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Astro Chase (Prototype).bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Astroblast [fixed].bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Astroblast.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Astrowar (PAL).bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Atari Video Cube.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Atlantis.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Atom Smasher (Prototype).bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bachelor Party.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Backgammon.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bank Heist.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Barnstorming.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Base Attack (PAL).bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Basic Math - Math.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/BASIC Programming.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Basketball.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Battlezone.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Beamrider.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Beany Bopper.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bear Game Demo.bin	4
1% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Beat 'Em & Eat 'Em.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Berenstain Bears.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bermuda Triangle.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Berzerk.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Big Bird's Egg Catch.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bionic Breakthrough (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Birthday Mania.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Blackjack - Black Jack.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Blueprint.bin	4
2% OK	

Extracting HC ROMS/BY ALPHABET/A-G/BMX Air Master.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bobby Is Going Home (PAL) [demonstration cartridge].bin	42%
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bobby Is Going Home (PAL).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Boggle (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Boing!.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bouncin' Baby Bunnies (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bowling.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Boxing.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Brain Games.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Breakout - Breakaway IV.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bridge [fixed].bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bridge.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Buck Rogers - Planet of Zoom.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bugs Bunny (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bugs.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bump 'n' Jump.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Bumper Bash.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/BurgerTime.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Burning Desire (PAL).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cabbage Patch Kids - Adventures in the Park (Prototype).bin	42%
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cakewalk.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/California Games.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Canyon Bomber.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Care Bears (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Carnival.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Casino - Poker Plus.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cat Trax.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Centipede.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Challenge of.... Nexar, The.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Championship Soccer - Soccer.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Chase the Chuck Wagon.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Checkers.bin	4
2% OK	

Extracting HC ROMS/BY ALPHABET/A-G/China Syndrome.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Chopper Command.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Chuck Norris Superkicks.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Circus Atari - Circus.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Coco Nuts.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Codebreaker - Code Breaker.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Color Bar Generator.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Colors (Prototype) (PAL).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Combat - Tank-Plus.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Combat Two (Prototype).bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Commando Raid.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Commando [different logo].bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Commando.bin	4
2% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Communist Mutants from Space.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/CompuMate.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Condor Attack.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Confrontation (Prototype).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Congo Bongo.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cookie Monster Munch.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cosmic Ark [selectable starfield].bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cosmic Ark.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cosmic Commuter.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cosmic Creeps.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cosmic Swarm.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crack'ed (Prototype).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crackpots.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crash Dive.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crazy Climber.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Cross Force.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crossbow.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crypts of Chaos.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Crystal Castles.bin	4
3% OK	

Extracting HC ROMS/BY ALPHABET/A-G/Cubicolor (Prototype).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Custer's Revenge.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dancing Plate (PAL).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dark Cavern.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dark Chambers.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Deadly Duck.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Death Trap.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Defender.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Demolition Herby.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Demon Attack [fixed].bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Demon Attack.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Demons to Diamonds.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Depth Charge (Prototype).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Desert Falcon.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Diagnostic Test Cartridge 2.0 (Prototype).bin	
43% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Diagnostic Test Cartridge 2.6.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Diagnostic Test Cartridge 4.2.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dice Puzzle (PAL).bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dig Dug.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dodge 'Em - Dodger Cars [fixed].bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dodge 'Em - Dodger Cars.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dolphin.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Donald Duck's Speedboat (Prototype).bin	
43% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Donkey Kong Junior.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Donkey Kong.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Double Dragon.bin	4
3% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Double Dunk.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dragonfire.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dragonstomper.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dragster.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dukes of Hazzard.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Dumbo's Flying Circus (Prototype).bin	4
4% OK	

Extracting HC ROMS/BY ALPHABET/A-G/Dune (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/E.T. - The Extra-Terrestrial.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Earth Dies Screaming, The.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Eggomania.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Elevator Action (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Elf Adventure (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Eli's Ladder.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Elk Attack (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Encounter at L-5.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Enduro.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Entity, The (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Entombed.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Escape from the Mindmaster.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Espial.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Euro Gen (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Exocet (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Extra Terrestrials.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fantastic Voyage.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fast Eddie.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fast Food.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fatal Run (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fathom.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Final Approach.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fire Fighter.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fire Fly.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fireball.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Firefox (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Fishing Derby.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Flag Capture - Capture.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Flash Gordon.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Football Demo.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Football.bin	4
4% OK	

Extracting HC ROMS/BY ALPHABET/A-G/Forest (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frankenstein's Monster.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Freeway.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frisco (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frog Demo (PAL).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frog Pond (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frogger II - Threedeep!.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frogger.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frogs and Flies.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Front Line.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Frostbite.bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Funky Fish (Prototype).bin	4
4% OK	
Extracting HC ROMS/BY ALPHABET/A-G/G.I. Joe - Cobra Strike.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Galaxian.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/GameLine Master Module ROM.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gamma-Attack.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gangster Alley [fixed].bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gangster Alley.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Garfield (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gas Hog [fixed].bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gas Hog.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gauntlet.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Ghost Manor.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Ghostbusters II (PAL) [different tune].bin	4
45% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Ghostbusters II (PAL).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Ghostbusters.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Glacier Patrol.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Glib - Video Word Game.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Going-Up (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Golf Diagnostic (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Golf.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Good Luck, Charlie Brown (Prototype).bin	4
45% OK	

Extracting HC ROMS/BY ALPHABET/A-G/Gopher.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gorf.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Grand Prix.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gravitar.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gremlins.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Grover's Music Maker (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Guardian.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/A-G/Gyruss.bin	4
5% OK	
Creating HC ROMS/BY ALPHABET/H-R	OK
Extracting HC ROMS/BY ALPHABET/H-R/H.E.R.O..bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Halloween.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Hangman - Spelling.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Hard-Head (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Harem.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Haunted House.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Heart Like a Wheel (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Holey Moley (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Home Run - Baseball.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Human Cannonball - Cannon Man.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Hunt & Score - Memory Match.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Ice Hockey.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Ikari Warriors.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Imagic Selector ROM.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Immies & Aggies (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Inca Gold (PAL).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Indy 500 - Race.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Infiltrate.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/International Soccer.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Ixion (Prototype).bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/James Bond 007.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Jawbreaker.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Journey Escape.bin	4
5% OK	
Extracting HC ROMS/BY ALPHABET/H-R/Joust.bin	4

5%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Jr. Pac-Man.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Jungle Hunt.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kabobber (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kaboom!.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kamikaze Saucers (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kangaroo.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Karate.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Keystone Kapers.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kick-Man (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Killer Satellites.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/King Kong.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Klax (PAL).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kool-Aid Man.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Krull.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kung-Fu Master.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Kyphus (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Laser Blast.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Laser Gates.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lasercade (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lilly Adventure (PAL).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lochjaw.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lock 'n' Chase.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/London Blitz.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Looping (Prototype).bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lord of the Rings, The - Journey to Rivendell (Prototype).bin	46%	OK
Extracting HC ROMS/BY ALPHABET/H-R/Lost Luggage [no opening scene].bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Lost Luggage.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/M.A.D..bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/M.A.S.H.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/MagiCard.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Malagai.bin		4
6%	OK	
Extracting HC ROMS/BY ALPHABET/H-R/Mangia'.bin		4

```

6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Marauder.bin                                4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Marine Wars.bin                               4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mario Bros..bin                             4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Master Builder.bin                           4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Masters of the Universe - The Power of He-Man.bn   46%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Math Gran Prix.bin                            4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Maze Craze - A Game of Cops 'n Robbers - Maze Ma  nia - A Game of Cops 'n Robbers.bin        46%      OK
Extracting HC ROMS/BY ALPHABET/H-R/McDonald's - Golden Arches Adventure (Prototyp  e).bin      46%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mega Force.bin                                4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/MegaBoy.bin                                 4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/MegaMania - A Space Nightmare.bin                4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Meltdown (Prototype).bin                         4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Midnight Magic.bin                            4
6%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Millipede.bin                                4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mind Maze (Prototype).bin                         4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Miner 2049er - Starring Bounty Bob [fixed].bin    47%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Miner 2049er - Starring Bounty Bob.bin           47%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Miner 2049er Volume II.bin                      4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mines of Minos.bin                            4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Miniature Golf - Arcade Golf.bin                 4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Miss Piggy's Wedding (Prototype).bin             4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Missile Command [no initials].bin               4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Missile Command.bin                            4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Missile Control (PAL).bin                      4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mission 3,000 A.D. (PAL) [demonstration cartridg  e].bin      47%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mission 3,000 A.D. (PAL).bin                     4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mission Survive (PAL) [louder sounds].bin       47%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mission Survive (PAL).bin                        4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Mogul Maniac.bin                                4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Monster Cise (Prototype).bin                     4
7%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Montezuma's Revenge - Featuring Panama Joe.bn   47%      OK
Extracting HC ROMS/BY ALPHABET/H-R/Moon Patrol.bn                                  4

```

7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Moonsweeper.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Morse Code Tutor.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Motocross Racer.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/MotoRodeo.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mountain King.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mouse Trap.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mr. Do!'s Castle.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mr. Do!.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mr. Postman (PAL).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Ms. Pac-Man.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Music Demo.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Music Machine, The.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/My Golf (PAL) [fixed].bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/My Golf (PAL).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Mysterious Thief, A (Prototype).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Name This Game.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Night Driver.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Nightmare (PAL).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/No Escape!.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Nuts (PAL).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Obelix.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Off the Wall.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Off Your Rocker (Prototype).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Official Frogger, The.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Oink!.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Omega Race.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Open, Sesame! (PAL).bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Oscar's Trash Race.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Othello [no grid markers].bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Othello.bin	4
7%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Out of Control.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Outlaw - Gunslinger.bin	4

8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pac-Man.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Panda Chase (PAL).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Parachute (PAL).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Line, Handcar.bin 48% OK
Extracting HC ROMS/BY ALPHABET/H-R/Peek-A-Boo (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pengo.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pete Rose Baseball.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Phantom Tank (PAL).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pharaoh's Curse (PAL).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Phaser Patrol.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Phoenix.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pick 'n' Pile (PAL).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pick Up (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Picnic.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Piece o' Cake.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pigs in Space - Starring Miss Piggy.bin 4
48% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pitfall II - Lost Caverns.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pitfall! - Pitfall Harry's Jungle Adventure.bin 4
48% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pizza Chef (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Planet of the Apes (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Planet Patrol.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Plaque Attack.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pleiades (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Polaris.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pole Position.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Polo (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pompeii (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pooyan.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Popeye.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Porky's.bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Power Lords (Prototype).bin 4
8% OK
Extracting HC ROMS/BY ALPHABET/H-R/Pressure Cooker.bin 4

8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Private Eye.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Pursuit of the Pink Panther (Prototype).bin	
48%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Q-bert's Qubes.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Q-bert.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Quadrupin.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Quest for Quintana Roo.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Quick Step!.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rabbit Transit.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Racer (Prototype).bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Racing Car (PAL).bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Racquetball.bin	4
8%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Radar Lock.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Raft Rider.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Raiders of the Lost Ark.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Ram It.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rampage!.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Reactor.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Baseball.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Basketball (Prototype) (PAL).bin	
49%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Boxing.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Football.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Soccer [no opening tune].bin	
49%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Soccer.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Tennis.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/RealSports Volleyball.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Red Sea Crossing.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rescue Terra I.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Revenge of the Beefsteak Tomatoes.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Riddle of the Sphinx.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/River Patrol.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/River Raid II.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/River Raid.bin	4

9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Road Runner.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Robin Hood.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Robot Tank.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Roc 'n Rope.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rocky & Bullwinkle (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Room of Doom.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rubik's Cube 3-D (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/H-R/Rush Hour (Prototype).bin	4
9%	OK	
Creating	HC ROMS/BY ALPHABET/S-Z	OK
Extracting	HC ROMS/BY ALPHABET/S-Z/S.A.C. Alert (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Saboteur (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Save Mary! (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Save Our Ship (PAL).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Save the Whales (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sea Battle.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sea Monster (PAL).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Seahawk (PAL).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Seaquest.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Secret Agent (Prototype).bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Secret Quest.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sentinel.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Shootin' Gallery.bin	4
9%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Shooting Arcade (Prototype).bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Shuttle Orbiter.bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sinistar (Prototype).bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sir Lancelot.bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Skate Boardin'.bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Skeet Shoot.bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Ski Hunt (PAL).bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Skiing.bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Skindiver (PAL).bin	5
0%	OK	
Extracting	HC ROMS/BY ALPHABET/S-Z/Sky Alien (PAL).bin	5
0%	OK	

Extracting HC ROMS/BY ALPHABET/S-Z/Sky Diver - Dare Diver.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sky Jinks.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sky Patrol (Prototype).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sky Skipper.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Slot Machine - Slots.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Slot Racers - Maze.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Smurf - Rescue in Gargamel's Castle.bin	5
50% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Smurfs Save the Day.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Snail Against Squirrel (PAL).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sneak 'n Peek.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Snoopy and the Red Baron.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Snow White (Prototype).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Solar Fox.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Solar Storm.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Solaris.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sorcerer's Apprentice.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sorcerer.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Attack.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Cavern.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Invaders.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Jockey.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Shuttle - A Journey Into Space [FE bankswitching].bin	5
50% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Shuttle - A Journey Into Space.bin	5
50% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space Tunnel (PAL).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Space War - Space Combat.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spacechase.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/SpaceMaster X-7.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spider Fighter.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spider-Man.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spike's Peak.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spinning Fireball (Prototype).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spitfire Attack.bin	5
0% OK	

Extracting HC ROMS/BY ALPHABET/S-Z/Springer.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sprint Master.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Spy Hunter.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Squeeze Box.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Squoosh (Prototype).bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sssnake.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stampede.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Fox.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Raiders.bin	5
0% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Ship - Outer Space.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Strike.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Trek - Strategic Operations Simulator.bin	
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Voyager.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Wars - Jedi Arena.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Wars - Return of the Jedi - Death Star Battle.bin	
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Wars - Return of the Jedi - Ewok Adventure (Prototype).bin	
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Wars - The Arcade Game.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Star Wars - The Empire Strikes Back.bin	
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stargate.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stargunner.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/StarMaster.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Steeplechase (PAL).bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Steeplechase.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stellar Track.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stone Age.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Strategy X.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Strawberry Shortcake - Musical Match-Ups.bin	
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Street Racer - Speedway II.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stronghold.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Stunt Cycle (Prototype).bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sub-Scan.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Submarine Commander.bin	5
1% OK	

Extracting HC ROMS/BY ALPHABET/S-Z/Subterranea.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Suicide Mission.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Summer Games.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Super Breakout.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Super Challenge Baseball.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Super Challenge Football.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Super Cobra.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Super Football.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Supercharger BIOS.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Superman [fixed].bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Superman.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Surf's Up (Prototype).bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Surfer's Paradise - But Danger Below! (PAL).bin	5
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Surround - Chase.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Survival Island.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Survival Run (Prototype).bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Survival Run.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sweat! - The Decathlon Game (Prototype).bin	5
51% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Sword of Saros.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Swordfight.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/SwordQuest - EarthWorld.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/SwordQuest - FireWorld.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/SwordQuest - WaterWorld.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tac-Scan.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tapeworm.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tapper.bin	5
1% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tax Avoiders.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Taz.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Telepathy (Prototype).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tempest (Prototype).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tennis.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Texas Chainsaw Massacre, The (Prototype).bin	5
52% OK	

Extracting HC ROMS/BY ALPHABET/S-Z/Texas Chainsaw Massacre, The.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Threshold.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Thunderground.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Thwocker (Prototype).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Time Pilot.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Time Warp (PAL).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z>Title Match Pro Wrestling.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tomarc the Barbarian.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tomcat - The F-14 Fighter Simulator.bin	5
52% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tooth Protectors.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Towering Inferno.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Track and Field.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Treasure Below (PAL).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Trick Shot.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/TRON - Deadly Discs.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tunnel Runner.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Turbo (Prototype).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Turmoil.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Tutankham.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Universal Chaos.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Unknown Activision Game (Prototype).bin	5
52% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Unknown Datatech Game.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Up 'n Down.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Vanguard.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/VCS Draw Demo.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Venetian Blinds Demo.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Venture.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Checkers - Checkers.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Chess.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Jogger.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Life [higher sounds].bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Life.bin	5
2% OK	

Extracting HC ROMS/BY ALPHABET/S-Z/Video Olympics - Pong Sports.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Pinball - Arcade Pinball.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Reflex [no roman numbers].bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Video Reflex.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wabbit.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wall Ball.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wall Break (PAL).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Warlords.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Warplock.bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wing War (PAL).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wings (Prototype).bin	5
2% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Winter Games.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wizard (Prototype).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Wizard of Wor.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Word Zapper.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Words-Attack (Prototype) (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Worm War I.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/X-Man.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Xenophobe.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Xevious (Prototype).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Yars' Revenge.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Zaxxon.bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET/S-Z/Zoo Keeper Sounds (Prototype).bin	5
3% OK	
Creating HC ROMS/BY ALPHABET (PAL)	OK
Extracting HC ROMS/BY ALPHABET (PAL)/===== ROM HUNTER'S HARMONY CART PAL 1977-19	
92 VCS ROMS COLLECTION V5 =====.txt	53%
Creating HC ROMS/BY ALPHABET (PAL)/A-G	OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/208 in 1 Game Select ROM (PAL).bin	
53% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/3-D Tic-Tac-Toe (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Acid Drop (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Action Man - Action Force (PAL).bin	
53% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Activision Decathlon, The (PAL).bin	
53% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Adventure (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Adventures on GX-12 (PAL).bin	5
3% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Air Raid (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Air-Sea Battle (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Airlock (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Alpha Beam with Ernie (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Amidar (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Armor Ambush (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Artillery Duel (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Asterix (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Asteroid Fire (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Asteroids (PAL) [no copyright].bin	5
53% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Asteroids (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Astroblast (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Astrowar (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Atlantis (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Backgammon (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bank Heist (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Barnstorming (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Base Attack (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Baseball (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Basic Math (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/BASIC Programming (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Basketball (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Battlezone (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Beamrider (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Beat 'Em & Eat 'Em (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bermuda Triangle (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Berzerk (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Big Bird's Egg Catch (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Blackjack (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Blueprint (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/BMX Air Master (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bobby Is Going Home (PAL) [demonstration cartridge].bin	5
53% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bobby Is Going Home (PAL).bin	5
3% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bogey Blaster (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Boing! (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bowling (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Boxing (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Brain Games (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Breakout (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bridge (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Buck Rogers - Planet of Zoom (PAL).bin	5
54% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bugs (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bump 'n' Jump (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Bumper Bash (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Burning Desire (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Cakewalk (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/California Games (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Canyon Bomber (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Carnival (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Casino (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Centipede (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Centipede (Prototype) (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Challenge (HES) (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Challenge of.... Nexar, The (PAL).bin	5
54% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Championship Soccer (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Checkers (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/China Syndrome (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Chopper Command (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Circus Atari (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Codebreaker (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Colors (Prototype) (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Combat (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Commando (PAL).bin	5
4% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Commando Raid (PAL).bin	5
4% OK	

Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Communist Mutants from Space (PAL).bin	
54%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/CompuMate (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Condor Attack (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Congo Bongo (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cookie Monster Munch (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cosmic Ark (PAL) [selectable starfield].bin	
n	54%	OK
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cosmic Ark (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cosmic Creeps (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cosmic Swarm (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cosmic War (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Crackpots (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Crash Dive (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Criminal Pursuit (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Cross Force (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Crossbow (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Crystal Castles (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Custer's Revenge (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dancing Plate (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dark Chambers (PAL).bin	5
4%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Deadly Discs (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Defender (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Demolition Herby (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Demon Attack (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Demons to Diamonds (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Der moderne Ritter (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Desert Falcon (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Diagnostic Test Cartridge 2.6P (PAL).bin	
55%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dice Puzzle (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dig Dug (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dodge 'Em (PAL) [fixed].bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Dodge 'Em (PAL).bin	5
5%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/A-G/Donald Duck's Speedboat (Prototype) (PAL).bin	
n	55%	OK

Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Donkey Kong (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Donkey Kong Junior (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Double Dragon (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Double Dunk (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Dragon Defender (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Dragonfire (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Dragonstomper (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Dragster (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Dumbo's Flying Circus (Prototype) (PAL).bin	5
55% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/E.T. - The Extra-Terrestrial (PAL).bin	5
55% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Earth Dies Screaming, The (PAL).bin	5
55% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Eggomania (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Encounter at L-5 (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Enduro (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Escape from the Mindmaster (PAL).bin	5
55% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Espial (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Euro Gen (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Exocet (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/F-14 Tomcat (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fantastic Voyage (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Farmyard Fun (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fast Food (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fatal Run (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fathom (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fire Fighter (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fireball (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Firebug (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Fishing Derby (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Flag Capture (PAL).bin	5
5% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Flash Gordon (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Football (Atari) (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Football (Telegames) (PAL).bin	5
6% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Forest (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frankenstein's Monster (PAL).bin	5
56% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Freeway (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frisco (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frog Demo (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frogger (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frogger II - Threedeep! (PAL).bin	5
56% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frogs and Flies (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Frostbite (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Galaxian (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Gangster Alley (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Gas Hog (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Ghost Manor (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Ghostbusters (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Ghostbusters II (PAL) [different tune].bin	5
56% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Ghostbusters II (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Glacier Patrol (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Go Go Home Monster (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Golf (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Gopher (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Gorf (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Grand Prix (PAL).bin	5
6% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/Gyruss (PAL).bin	5
6% OK	
Creating HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS	OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/128 in 1 Game Select ROM.bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/3-D Genesis (Prototype).bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/3-D Ghost Attack (Prototype).bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/3-D Havoc (Prototype).bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/3-D Zapper (Prototype).bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Actionauts.bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Alien.bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Alligator People (Prototype).bin	56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/AndroMan on the M	56% OK

oon (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Aquaventure (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Arkyology (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Astro Chase (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Atari VCS Point-of-Purchase ROM.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Atari Video Cube.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Atlantis II.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Atom Smasher (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Bachelor Party.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Beany Bopper.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Bear Game Demo.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Berenstain Bears.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Bionic Breakthrough.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Birthday Mania.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Boggle (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Bouncin' Baby Bunnies (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Bugs Bunny (Prototype).bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/BurgerTime.bin 56% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Cabbage Patch Kids - Adventures in the Park (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Care Bears (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Cat Trax.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Cathouse Blues.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Chase the Chuck Wagon.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Coco Nuts.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Color Bar Generator.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Combat Two (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Computer Chess (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Confrontation (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Cosmic Commuter.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Crack'ed (Prototype).bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Crazy Climber.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Crypts of Chaos.bin 57% OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Cubicolor (Protot

```
ype).bin          57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Deadly Duck.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Death Trap.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Depth Charge (Proto
totype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Diagnostic Test C
artridge 2.0 (Prototype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Diagnostic Test C
artridge 4.2.bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Dolphin.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Dukes of Hazzard.
bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Dune (Prototype).
bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Elevator Action
(Prototype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Elf Adventure (Pr
ototype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Eli's Ladder.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Elk Attack (Proto
type).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Entity, The (Prot
otype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Entombed.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Extra Terrestrial
s.bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Final Approach.bi
n      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Fire Fly.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Firefox (Prototyp
e).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Football Demo.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Frog Pond (Protot
ype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Front Line.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Funky Fish (Proto
type).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/GameLine Master M
odule ROM.bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Gamma-Attack.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Garfield (Prototyp
e).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Gauntlet.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Glib - Video Word
Game.bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Going-Up (Prototyp
e).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Golf Diagnostic
(Prototype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Good Luck, Charli
e Brown (Prototype).bin      57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Gravitar.bin
           57%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Gremlins.bin
```

57%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Grover's Music Marker (Prototype).bin	57%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/A-G/REMAINING NTSC ORIGINALS/Guardian.bin	57%	OK
Creating HC ROMS/BY ALPHABET (PAL)/H-R		OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/H.E.R.O. (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Hangman (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Haunted House (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Homerun (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Human Cannonball (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Hunt & Score (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/I.Q. Memory Teaser (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Ice Hockey (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Ikari Warriors (PAL).bin		5
7% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Imagic Selector ROM (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Inca Gold (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Indy 500 (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Infernal Tower (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Infiltrate (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/International Soccer (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Jawbreaker (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Journey Escape (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Joust (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Jr. Pac-Man (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Jungle Hunt (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Kaboom! (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Kangaroo (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Karate (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Keystone Kapers (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Killer Satellites (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/King Kong (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Klax (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Knight on the Town (PAL).bin		5
8% OK		
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Kung-Fu Master (PAL).bin		5
8% OK		

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Laser Blast (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Laser Gates (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Lilly Adventure (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Lock 'n' Chase (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Los Angeles 1984 Games (Prototype) (PAL).bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Lost Luggage (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/M.A.D. (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/M.A.S.H (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mangia' (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Marauder (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Marine Wars (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mario Bros. (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Master Builder (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Math Gran Prix (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Maze Craze - A Game of Cops 'n Robbers (PAL).bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mega Force (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/MegaMania - A Space Nightmare (PAL).bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Midnight Magic (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Millipede (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Millipede (Prototype) (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Miner 2049er - Starring Bounty Bob (PAL).bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Miner 2049er Volume II (PAL).bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mines of Minos (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Miniature Golf (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Missile Command (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Missile Control (PAL).bin	5
8% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mission 3,000 A.D. (PAL) [demonstration cartridge].bin	5
58% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mission 3,000 A.D. (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mission Survive (PAL) [louder sounds].bin	5
59% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mission Survive (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mole Hunter (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Moon Patrol (PAL).bin	5
9% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Moonsweeper (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Motocross (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/MotoRodeo (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mouse Trap (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mr. Do! (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Mr. Postman (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Ms. Pac-Man (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/My Golf (PAL) [fixed].bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/My Golf (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Night Driver (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Night Stalker (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Nightmare (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/No Escape! (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Nuts (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Obelix (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Octopus (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Off the Wall (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Official Frogger, The (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Oink! (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Open, Sesame! (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Oscar's Trash Race (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Othello (PAL) [no grid markers].bin	5
59% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Othello (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Outlaw (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pac-Man (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Panda Chase (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Parachute (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Line, Handcar (PAL).bin	59%
	OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pengo (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pete Rose Baseball (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Phantom Tank (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pharaoh's Curse (PAL).bin	5
9% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Phaser Patrol (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Phoenix (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pick 'n' Pile (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Picnic (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pigs in Space - Starring Miss Piggy (PAL).bin	5
59% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pitfall II - Lost Caverns (PAL).bin	5
59% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pitfall! (PAL).bin	5
9% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Planet Patrol (PAL) [different spaceship].bin	5
59% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Planet Patrol (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Plaque Attack (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Polaris (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pole Position (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pooyan (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Popeye (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Pressure Cooker (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Private Eye (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Q-bert (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Quest for Quintana Roo (PAL).bin	6
60% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Quick Step! (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Rabbit Transit (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Racing Car (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Racquetball (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Radar Lock (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Raft Rider (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Raiders of the Lost Ark (PAL).bin	6
60% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Ram It (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Rampage! (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Reactor (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/RealSports Basketball (Prototype) (PAL).bin	6
60% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/RealSports Boxing (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/RealSports Soccer (PAL).bin	6
0% OK	
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/RealSports Tennis (PAL).bin	6
0% OK	

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/RealSports Volleyball (PAL).bin
0% OK

Creating HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Halloween.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Hard-Head (Prototy
pe).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Harem.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Heart Like a Whee
l (Prototype).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Holey Moley.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Ixion (Prototyp
e).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/James Bond 007.bi
n 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Kabobber (Prototyp
e).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Kamikaze Saucers
(Prototype).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Kick-Man (Prototyp
e).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Kool-Aid Man.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Krull.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Kyphus (Prototyp
e).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Lasercade (Prototy
pe).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/London Blitz.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Looping (Prototyp
e).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Lord of the Ring
s, The - Journey to Rivendell (Prototype).bin 60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/MagiCard.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Malagai.bin
60% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Masters of the Un
iverse - The Power of He-Man.bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/McDonald's - Gold
en Arches Adventure (Prototype).bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/MegaBoy.bin
61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Meltdown (Prototyp
e).bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Mind Maze (Prototy
pe).bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Miss Piggy's Wedd
ing (Prototype).bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Mogul Maniac.bin
61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Monster Cise (Pro
totype).bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Montezuma's Reven
ge - Featuring Panama Joe.bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Morse Code Tutor.
bin 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Motocross Racer.b
in 61% OK

Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Mountain King.bin

61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Mr. Do!'s Castle.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Music Demo.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Music Machine, Th e.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Off Your Rocker (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Omega Race.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Out of Control.bi n 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Peek-A-Boo (Proto type).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pepsi Invaders.bi n 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pick Up (Prototyp e).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Piece o' Cake.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pizza Chef (Proto type).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Planet of the Ape s (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/PlayAround Demo.b in 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pleiades (Prototy pe).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Polo (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pompeii (Prototyp e).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Porky's.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Power Lords (Prot otype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Pursuit of the Pi nk Panther (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Q-bert's Qubes.bi n 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Quadrupin.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Racer (Prototyp e).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/RealSports Baseba ll.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/RealSports Footba ll.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Red Sea Crossing.bi n 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Rescue Terra I.bi n 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Revenge of the Be efsteak Tomatoes.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/River Patrol.bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Rocky & Bullwinkl e (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Rubik's Cube 3-D (Prototype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Rush Hour (Protot ype).bin 61% OK
 Extracting HC ROMS/BY ALPHABET (PAL)/H-R/REMAINING NTSC ORIGINALS/Riddle of the Sphinx (PAL).bin 6

```

1%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/River Raid (PAL).bin          6
1%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/River Raid II (PAL).bin        6
1%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Road Runner (PAL).bin          6
2%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Robin Hood (PAL).bin           6
2%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Robot Tank (PAL).bin           6
2%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Roc 'n Rope (PAL).bin          6
2%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/H-R/Room of Doom (PAL).bin          6
2%      OK
Creating   HC ROMS/BY ALPHABET (PAL)/S-Z                                OK
Creating   HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS       OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Saboteur (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Save the Whales (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sea Battle.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Secret Agent (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sentinel.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Shootin' Gallery.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Shuttle Orbiter.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sinistar (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sky Patrol (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Smurfs Save the Day.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Snow White (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sorcerer.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Spitfire Attack.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Spy Hunter.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Squeeze Box.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Squoosh (Prototype).bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Star Fox.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Star Ship - Outer Space.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Stargunner.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Steeplechase.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Stellar Track.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Stone Age.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Stronghold.bin 62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Stunt Cycle (Prot

```

```

otype).bin          62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Submarine Command
er.bin            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Supercharger BIO
S.bin            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Surf's Up (Protot
ype).bin          62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Survival Run (Pro
totype).bin        62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Survival Run.bin
62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Sweat! - The Deca
thlon Game (Prototype).bin        62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Swordfight.bin
62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/SwordQuest - Wate
rWorld.bin        62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tapper.bin
62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tax Avoiders.bin
62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Telepathy (Protot
ype).bin          62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tempest (Prototyp
e).bin            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Texas Chainsaw Ma
ssacre, The (Prototype).bin        62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Texas Chainsaw Ma
ssacre, The.bin        62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Thwocker (Prototyp
e).bin            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Time Pilot.bin
62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tomarc the Barbar
ian.bin          62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tooth Protectors.
bin            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Track and Field.b
in            62%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Tunnel Runner.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Turbo (Prototyp
e).bin            63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Unknown Activisio
n Game (Prototype).bin        63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Unknown Datatech
Game.bin          63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Up 'n Down.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/VCS Draw Demo.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Venetian Blinds D
emo.bin          63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Video Jogger.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Video Life [highe
r sounds].bin        63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Video Life.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Video Reflex [no
roman numbers].bin        63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Video Reflex.bin
63%      OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Wabbit.bin

```

63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Wall Ball.bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Wizard (Prototype).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Xevious (Prototype).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/REMAINING NTSC ORIGINALS/Zoo Keeper Sounds (Prototype).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/S.A.C. Alert (Prototype) (PAL).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Save Mary! (Prototype) (PAL).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Save Our Ship (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sea Monster (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Seahawk (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Seaquest (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Seawolf 3 (Prototype) (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Secret Quest (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Shark Attack (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Shooting Arcade (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sir Lancelot (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Skate Boardin' (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Skeet Shoot (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Ski Hunt (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Ski Run (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Skiing (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Skindiver (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sky Alien (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sky Diver (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sky Jinks (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sky Skipper (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Slot Machine (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Slot Racers (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Smurf (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Snail Against Squirrel (PAL).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Sneak 'n Peek (PAL).bin	6
3%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Snoopy and the Red Baron (PAL).bin	
63%	OK	
Extracting	HC ROMS/BY ALPHABET (PAL)/S-Z/Solar Fox (PAL).bin	6

3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Solar Storm (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Solaris (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Sorcerer's Apprentice (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Attack (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Cavern (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Invaders (PAL) [different speed and colors].bin	63%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Invaders (PAL) [fixed].bin		
63%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Invaders (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Jockey (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Robot (PAL).bin		6
3%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Shuttle - A Journey Into Space (PA L).bin	64%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space Tunnel (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Space War (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Spacechase (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/SpaceMaster X-7 (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Spectracube Invasion (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Spider Fighter (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Spider-Man (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Spike's Peak (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Springer (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Sprint Master (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Sssnake (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Stampede (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Raiders (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Strike (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Trek - Strategic Operations Simulator (PAL).bin	64%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Voyager (PAL).bin		6
4%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Wars - Jedi Arena (PAL).bin		
64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Wars - Return of the Jedi - Death Sta r Battle (PAL).bin	64%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Wars - Return of the Jedi - Ewok Adve nture (PAL).bin	64%	OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Wars - The Arcade Game (PAL).bin		
64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Star Wars - The Empire Strikes Back (PAL).		

bin	64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Stargate (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Stargunner (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/StarMaster (PAL) [fixed].bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/StarMaster (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Steeplechase (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Strategy X (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Strawberry Shortcake - Musical Match-Ups (PAL).bin	64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Street Racer (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Sub-Scan (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Subterranea (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Suicide Mission (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Summer Games (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Super Baseball (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Super Breakout (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Super Cobra (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Super Football (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Super Kung-Fu (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Supercharger BIOS (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Superman (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Surfer's Paradise - But Danger Below! (PAL).bin	64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Surround (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Survival Island (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Sword of Saros (PAL).bin			6
4%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/SwordQuest - EarthWorld (PAL).bin	64%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/SwordQuest - FireWorld (PAL).bin	65%	OK	
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Tac-Scan (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Tanks War (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Tapeworm (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Taz (Prototype) (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Teddy Apple (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Tennis (PAL).bin			6
5%	OK		
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Threshold (PAL).bin			6

5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Thunderground (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Time Warp (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Title Match Pro Wrestling (PAL).bin
65% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Treasure Below (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Treasure Island (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Trick Shot (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Turmoil (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Tutankham (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/UFO Patrol (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Universal Chaos (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Vanguard (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Venture (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Video Checkers (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Video Chess (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Video Olympics (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Video Pinball (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Walker (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Wall Break (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Warlords (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Warplock (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Wing War (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Wings (Prototype) (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Winter Games (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Wizard of Wor (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Word Zapper (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Words-Attack (Prototype) (PAL).bin
65% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/World End (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Worm War I (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/X-Man (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Xenophobe (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Yars' Revenge (PAL).bin 6
5% OK
Extracting HC ROMS/BY ALPHABET (PAL)/S-Z/Zaxxon (PAL).bin 6

```

5%      OK
Creating HC ROMS/BY COMPANY                                     OK
Creating HC ROMS/BY COMPANY/20th Century Fox Video Games       OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Alien.bin   6
5%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Alligator People (Protot
ype).bin      65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Bank Heist.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Beany Bopper.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Crash Dive.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Crypts of Chaos.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Deadly Duck.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Earth Dies Screaming, Th
e.bin      65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Entity, The (Prototype).
bin      65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Fantastic Voyage.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Fast Eddie.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Flash Gordon.bin
65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Heart Like a Wheel (Prot
otype).bin      65%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Lasercade (Prototype).bi
n      66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/M.A.S.H.bin   6
6%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Mega Force.bin
66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Meltdown (Prototype).bin
66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Pick Up (Prototype).bin
66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Planet of the Apes (Prot
otype).bin      66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Porky's.bin   6
6%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Revenge of the Beefsteak
Tomatoes.bin      66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Save the Whales (Prototy
pe).bin      66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/SpaceMaster X-7.bin
66%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Turmoil.bin   6
6%      OK
Extracting HC ROMS/BY COMPANY/20th Century Fox Video Games/Worm War I.bin
66%      OK
Creating  HC ROMS/BY COMPANY/Absolute Entertainment               OK
Extracting HC ROMS/BY COMPANY/Absolute Entertainment/Pete Rose Baseball.bin
66%      OK
Extracting HC ROMS/BY COMPANY/Absolute Entertainment/Skate Boardin'.bin   6
6%      OK
Extracting HC ROMS/BY COMPANY/Absolute Entertainment/Title Match Pro Wrestling.bin
66%      OK
Extracting HC ROMS/BY COMPANY/Absolute Entertainment/Tomcat - The F-14 Fighter Simu
lator.bin      66%      OK
Creating  HC ROMS/BY COMPANY/Activision                         OK
Extracting HC ROMS/BY COMPANY/Activision/Activision Decathlon, The [fixed].bin

```

66%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Activision Decathlon, The.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Barnstorming.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Beamrider.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Boxing.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Bridge [fixed].bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Bridge.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Checkers.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Chopper Command.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Commando [different logo].bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Commando.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Cosmic Commuter.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Crackpots.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Dolphin.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Double Dragon.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Dragster.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Enduro.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Fishing Derby.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Freeway.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Frostbite.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Ghostbusters.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Grand Prix.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/H.E.R.O..bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Hard-Head (Prototype).bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Ice Hockey.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Kabobber (Prototype).bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Kaboom!.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Keystone Kapers.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Kung-Fu Master.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Laser Blast.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/MegaMania - A Space Nightmare.bin	
66%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Oink!.bin	6
6%	OK	
Extracting	HC ROMS/BY COMPANY/Activision/Pitfall II - Lost Caverns.bin	6

```

7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Pitfall! - Pitfall Harry's Jungle Adventure.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Plaque Attack.bin                                6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Pressure Cooker.bin                            6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Private Eye.bin                             6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Rampage!.bin                           6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/River Raid II.bin                         6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/River Raid.bin                            6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Robot Tank.bin                          6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Seaquest.bin                           6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Skiing.bin                            6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Sky Jinks.bin                           6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Space Shuttle - A Journey Into Space [FE bankswitching].bin      6
67%      OK
Extracting HC ROMS/BY COMPANY/Activision/Space Shuttle - A Journey Into Space.bin          6
67%      OK
Extracting HC ROMS/BY COMPANY/Activision/Spider Fighter.bin                         6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Stampede.bin                           6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/StarMaster.bin                          6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Tennis.bin                            6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Thwocker (Prototype).bin                      6
7%      OK
Extracting HC ROMS/BY COMPANY/Activision/Unknown Activision Game (Prototype).bin        6
67%      OK
Extracting HC ROMS/BY COMPANY/Activision/Venetian Blinds Demo.bin                  6
7%      OK
Creating HC ROMS/BY COMPANY/Advanced Program Technology                               OK
Extracting HC ROMS/BY COMPANY/Advanced Program Technology/Actionauts.bin           6
7%      OK
Creating HC ROMS/BY COMPANY/American Videogame                                 OK
Extracting HC ROMS/BY COMPANY/American Videogame/Tax Avoiders.bin                 6
7%      OK
Creating HC ROMS/BY COMPANY/Amiga                                         OK
Extracting HC ROMS/BY COMPANY/Amiga/3-D Genesis (Prototype).bin                   6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/3-D Ghost Attack (Prototype).bin             6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/3-D Havoc (Prototype).bin                     6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/Depth Charge (Prototype).bin                6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/Mogul Maniac.bin                           6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/Off Your Rocker (Prototype).bin            6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/S.A.C. Alert (Prototype).bin               6
7%      OK
Extracting HC ROMS/BY COMPANY/Amiga/Surf's Up (Prototype).bin                 6
7%      OK

```

```

Creating   HC ROMS/BY COMPANY/Answer Software Corporation          OK
Extracting HC ROMS/BY COMPANY/Answer Software Corporation/Confrontation (Prototyp
e).bin      67%      OK
Extracting HC ROMS/BY COMPANY/Answer Software Corporation/Gauntlet.bin       6
7%      OK
Extracting HC ROMS/BY COMPANY/Answer Software Corporation/Malagai.bin       6
7%      OK
Creating   HC ROMS/BY COMPANY/Apollo - Games by Apollo           OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Final Approach.bin
67%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Guardian.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Infiltrate.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Kyphus (Prototype).bin
67%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Lochjaw.bin       6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Lost Luggage [no opening sce
ne].bin      67%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Lost Luggage.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Pompeii (Prototype).bin
67%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Racquetball.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Skeet Shoot.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Space Cavern.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Spacechase.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Squoosh (Prototype).bin
67%      OK
Extracting HC ROMS/BY COMPANY/Apollo - Games by Apollo/Wabbit.bin       6
7%      OK
Creating   HC ROMS/BY COMPANY/Atari - Sears                      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/3-D Tic-Tac-Toe.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Adventure.bin       6
7%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Air-Sea Battle - Target Fun.bin
67%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Alpha Beam with Ernie.bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Aquaventure (Prototype).bin      6
7%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Asteroids [no copyright].bin      6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Asteroids.bin       6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Atari Video Cube.bin      6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Backgammon.bin       6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Basic Math - Math.bin      6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/BASIC Programming.bin      6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Basketball.bin       6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Battlezone.bin       6
8%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Berzerk.bin        6

```

8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Big Bird's Egg Catch.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Bionic Breakthrough (Prototype).bin
68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Blackjack - Black Jack.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/BMX Air Master.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Boggle (Prototype).bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Bowling.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Brain Games.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Breakout - Breakaway IV.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Bugs Bunny (Prototype).bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Canyon Bomber.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Casino - Poker Plus.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Centipede.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Championship Soccer - Soccer.bin 6
68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Circus Atari - Circus.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Codebreaker - Code Breaker.bin
68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Colors (Prototype) (PAL).bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Combat - Tank-Plus.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Combat Two (Prototype).bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Cookie Monster Munch.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Crack'ed (Prototype).bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Crazy Climber.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Crossbow.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Crystal Castles.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dark Chambers.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Defender.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Demons to Diamonds.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Desert Falcon.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Diagnostic Test Cartridge 2.0 (Prototyp
e).bin 68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Diagnostic Test Cartridge 2.6.bin
68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Diagnostic Test Cartridge 4.2.bin
68% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dig Dug.bin 6
8% OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dodge 'Em - Dodger Cars [fixed].bin

```

68%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dodge 'Em - Dodger Cars.bin          6
8%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Donald Duck's Speedboat (Prototype).bin
68%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Double Dunk.bin                      6
8%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dukes of Hazzard.bin                  6
8%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dumbo's Flying Circus (Prototype).bin
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Dune (Prototype).bin                  6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/E.T. - The Extra-Terrestrial.bin
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Elevator Action (Prototype).bin        6
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Elf Adventure (Prototype).bin          6
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Elk Attack (Prototype).bin             6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Fatal Run (PAL).bin                  6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Firefox (Prototype).bin                6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Flag Capture - Capture.bin            6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Football Demo.bin                     6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Football.bin                          6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Frog Pond (Prototype).bin              6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Galaxian.bin                           6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Garfield (Prototype).bin               6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Golf.bin                             6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Good Luck, Charlie Brown (Prototype).bi
n          69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Gravitar.bin                           6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Gremlins.bin                          6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Grover's Music Maker (Prototype).bin
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Hangman - Spelling.bin                 6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Haunted House.bin                     6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Holey Moley (Prototype).bin            6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Home Run - Baseball.bin                6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Human Cannonball - Cannon Man.bin
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Hunt & Score - Memory Match.bin
69%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Ikari Warriors.bin                    6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Indy 500 - Race.bin                  6
9%       OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Joust.bin                            6

```

9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Jr. Pac-Man.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Jungle Hunt.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Kangaroo.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Klax (PAL).bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Krull.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Mario Bros..bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Math Gran Prix.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Maze Craze - A Game of Cops 'n Robbers - Maze Mania - A Game of Cops 'n Robbers.bin	69% OK
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Midnight Magic.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Millipede.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Mind Maze (Prototype).bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Miniature Golf - Arcade Golf.bin	
69%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Miss Piggy's Wedding (Prototype).bin	
69%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Missile Command [no initials].bin	
69%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Missile Command.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Monster Cise (Prototype).bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Moon Patrol.bin	6
9%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/MotoRodeo.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Ms. Pac-Man.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Night Driver.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Obelix.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Off the Wall.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Oscar's Trash Race.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Othello [no grid markers].bin	
70%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Othello.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Outlaw - Gunslinger.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Pac-Man.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Peek-A-Boo (Prototype).bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Pengo.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Phoenix.bin	7
0%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Pigs in Space - Starring Miss Piggy.bin	
70%	OK	
Extracting	HC ROMS/BY COMPANY/Atari - Sears/Pole Position.bin	7

```
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Polo (Prototype).bin          7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Quadrupin.bin                  7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Racer (Prototype).bin          7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Radar Lock.bin                 7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Raiders of the Lost Ark.bin    7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Baseball.bin         7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Basketball (Prototype) (PA L).bin 70%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Boxing.bin            7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Football.bin          7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Soccer [no opening tune].bin 70%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Soccer.bin             7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Tennis.bin            7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/RealSports Volleyball.bin         7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Road Runner.bin                 7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Rubik's Cube 3-D (Prototype).bin 70%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Saboteur (Prototype).bin           7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Save Mary! (Prototype).bin        7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Secret Quest.bin                 7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Sentinel.bin                      7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Shooting Arcade (Prototype).bin 70%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Sinistar (Prototype).bin           7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Sky Diver - Dare Diver.bin       7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Slot Machine - Slots.bin         7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Slot Racers - Maze.bin           7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Snoopy and the Red Baron.bin     7
0%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Snow White (Prototype).bin         7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Solaris.bin                       7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Sorcerer's Apprentice.bin          7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Space Invaders.bin                7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Space War - Space Combat.bin     7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Sprint Master.bin                 7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Star Raiders.bin                  7
```

```

1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Star Ship - Outer Space.bin          7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Stargate.bin                         7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Steeplechase.bin                      7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Stellar Track.bin                     7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Street Racer - Speedway II.bin        7
71%     OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Stunt Cycle (Prototype).bin           7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Submarine Commander.bin               7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Super Breakout.bin                    7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Super Football.bin                   7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Superman [fixed].bin                 7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Superman.bin                         7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Surround - Chase.bin                7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/SwordQuest - EarthWorld.bin           7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/SwordQuest - FireWorld.bin            7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/SwordQuest - WaterWorld.bin           7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Taz.bin                             7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Telepathy (Prototype).bin              7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Tempest (Prototype).bin                7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Track and Field.bin                  7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Vanguard.bin                         7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Video Checkers - Checkers.bin         7
71%     OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Video Chess.bin                       7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Video Olympics - Pong Sports.bin       7
    71%     OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Video Pinball - Arcade Pinball.bin     7
    71%     OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Warlords.bin                          7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Wizard (Prototype).bin                 7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Xenophobe.bin                         7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Xevious (Prototype).bin                 7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Yars' Revenge.bin                     7
1%      OK
Extracting HC ROMS/BY COMPANY/Atari - Sears/Zoo Keeper Sounds (Prototype).bin       7
    71%     OK
Creating   HC ROMS/BY COMPANY/Avalon Hill                                         OK
Extracting HC ROMS/BY COMPANY/Avalon Hill/Death Trap.bin                           7
1%      OK

```

Extracting HC ROMS/BY COMPANY/Avalon Hill/London Blitz.bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/Avalon Hill/Out of Control.bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/Avalon Hill/Shuttle Orbiter.bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/Avalon Hill/Wall Ball.bin	7
1% OK	
Creating HC ROMS/BY COMPANY/Camelot - Johnson & Johnson	OK
Extracting HC ROMS/BY COMPANY/Camelot - Johnson & Johnson/Tooth Protectors.bin	
71% OK	
Creating HC ROMS/BY COMPANY/CBS Electronics	OK
Extracting HC ROMS/BY COMPANY/CBS Electronics/Blueprint.bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Gorf.bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Kick-Man (Prototype).bin	7
1% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Mountain King.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Omega Race.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Solar Fox.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Tunnel Runner.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Wings (Prototype).bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/CBS Electronics/Wizard of Wor.bin	7
2% OK	
Creating HC ROMS/BY COMPANY/CCE	OK
Extracting HC ROMS/BY COMPANY/CCE/Stone Age.bin	7
2% OK	
Creating HC ROMS/BY COMPANY/Coleco	OK
Extracting HC ROMS/BY COMPANY/Coleco/Berenstain Bears.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Cabbage Patch Kids - Adventures in the Park (Prototype).bin	7
72% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Carnival.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Donkey Kong Junior.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Donkey Kong.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Front Line.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Looping (Prototype).bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Mouse Trap.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Mr. Do!.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Roc 'n Rope.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Smurf - Rescue in Gargamel's Castle.bin	
72% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Smurfs Save the Day.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Time Pilot.bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Turbo (Prototype).bin	7
2% OK	
Extracting HC ROMS/BY COMPANY/Coleco/Venture.bin	7
2% OK	

```

Extracting HC ROMS/BY COMPANY/Coleco/Zaxxon.bin                                7
2%      OK
Creating  HC ROMS/BY COMPANY/CommaVid - Computer Magic                         OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Cakewalk.bin           7
2%      OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Cosmic Swarm.bin       7
2%      OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Frog Demo (PAL).bin    7
    72%     OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/MagiCard.bin            7
2%      OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Mines of Minos.bin      7
72%     OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Room of Doom.bin        7
2%      OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Rush Hour (Prototype).bin 7
    72%     OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Stronghold.bin          7
2%      OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Video Life [higher sounds].bin 7
    72%     OK
Extracting HC ROMS/BY COMPANY/CommaVid - Computer Magic/Video Life.bin            7
2%      OK
Creating   HC ROMS/BY COMPANY/Control Video Corporation                         OK
Extracting  HC ROMS/BY COMPANY/Control Video Corporation/GameLine Master Module ROM. bin 7
    72%     OK
Creating   HC ROMS/BY COMPANY/Data Age                                         OK
Extracting  HC ROMS/BY COMPANY/Data Age/Airlock.bin                           7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Bermuda Triangle.bin                   7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Bugs.bin                            7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Encounter at L-5.bin                  7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Frankenstein's Monster.bin            7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Journey Escape.bin                   7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Secret Agent (Prototype).bin          7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Sssnake.bin                           7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Survival Run (Prototype).bin          7
2%      OK
Extracting  HC ROMS/BY COMPANY/Data Age/Warplock.bin                          7
2%      OK
Creating   HC ROMS/BY COMPANY/Datatech Enterprises Co                         OK
Extracting  HC ROMS/BY COMPANY/Datatech Enterprises Co/Unknown Datatech Game.bin 7
    72%     OK
Creating   HC ROMS/BY COMPANY/Dimax - Sinmax                               OK
Extracting  HC ROMS/BY COMPANY/Dimax - Sinmax/Astrowar (PAL).bin             7
2%      OK
Creating   HC ROMS/BY COMPANY/Dynacom                               OK
Extracting  HC ROMS/BY COMPANY/Dynacom/MegaBoy.bin                      7
2%      OK
Creating   HC ROMS/BY COMPANY/Epyx                                 OK
Extracting  HC ROMS/BY COMPANY/Epyx/California Games.bin                 7
3%      OK
Extracting  HC ROMS/BY COMPANY/Epyx/Summer Games.bin                  7
3%      OK
Extracting  HC ROMS/BY COMPANY/Epyx/Winter Games.bin                  7
3%      OK
Creating   HC ROMS/BY COMPANY/Exus Corporation                         OK

```

Extracting	HC ROMS/BY COMPANY/Exus Corporation/Video Jogger.bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Exus Corporation/Video Reflex [no roman numbers].bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Exus Corporation/Video Reflex.bin	7
3%	OK	
Creating	HC ROMS/BY COMPANY/First Star Software	OK
Extracting	HC ROMS/BY COMPANY/First Star Software/Boing!.bin	7
3%	OK	
Creating	HC ROMS/BY COMPANY/Funvision - Fund. International Co	OK
Extracting	HC ROMS/BY COMPANY/Funvision - Fund. International Co/Inca Gold (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Funvision - Fund. International Co/Time Warp (PAL).bin	
73%	OK	
Creating	HC ROMS/BY COMPANY/Gammation	OK
Extracting	HC ROMS/BY COMPANY/Gammation/Gamma-Attack.bin	7
3%	OK	
Creating	HC ROMS/BY COMPANY/HES	OK
Extracting	HC ROMS/BY COMPANY/HES/My Golf (PAL) [fixed].bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/HES/My Golf (PAL).bin	7
3%	OK	
Creating	HC ROMS/BY COMPANY/Home Vision - GEM International Corp	OK
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Asteroid Fire (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Base Attack (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Frisco (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Lilly Adventure (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Panda Chase (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Parachute (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Racing Car (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Ski Hunt (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Sky Alien (PAL).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Home Vision - GEM International Corp/Wall Break (PAL).bin	
73%	OK	
Creating	HC ROMS/BY COMPANY/HomeComputer Software Co	OK
Extracting	HC ROMS/BY COMPANY/HomeComputer Software Co/Arkyology (Prototype).bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/HomeComputer Software Co/Music Machine, The.bin	
73%	OK	
Creating	HC ROMS/BY COMPANY/Imagic	OK
Extracting	HC ROMS/BY COMPANY/Imagic/Atlantis.bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Cosmic Ark [selectable starfield].bin	
73%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Cosmic Ark.bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Cubicolor (Prototype).bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Demon Attack [fixed].bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Demon Attack.bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Dragonfire.bin	7
3%	OK	
Extracting	HC ROMS/BY COMPANY/Imagic/Fathom.bin	7

3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Fire Fighter.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Imagic Selector ROM.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Laser Gates.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Moonsweeper.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/No Escape!.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Quick Step!.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Riddle of the Sphinx.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Shootin' Gallery.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Sky Patrol (Prototype).bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Solar Storm.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Star Voyager.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Subterranea.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Trick Shot.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Imagic/Wing War (PAL).bin 7
3% OK
Creating HC ROMS/BY COMPANY/Inspirational Video Concepts OK
Extracting HC ROMS/BY COMPANY/Inspirational Video Concepts/Red Sea Crossing.bin
73% OK
Creating HC ROMS/BY COMPANY/James Wickstead Design Associates OK
Extracting HC ROMS/BY COMPANY/James Wickstead Design Associates/Euro Gen (PAL).bin
73% OK
Extracting HC ROMS/BY COMPANY/James Wickstead Design Associates/Music Demo.bin
73% OK
Creating HC ROMS/BY COMPANY/Konami OK
Extracting HC ROMS/BY COMPANY/Konami/Marine Wars.bin 7
3% OK
Extracting HC ROMS/BY COMPANY/Konami/Pooyan.bin 7
4% OK
Extracting HC ROMS/BY COMPANY/Konami/Strategy X.bin 7
4% OK
Creating HC ROMS/BY COMPANY/M Network - Mattel Electronics OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Adventures of TRON.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Air Raiders.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Armor Ambush.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Astroblast [fixed].bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Astroblast.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Bump 'n' Jump.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/BurgerTime.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Dark Cavern.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Frogs and Flies.bin
74% OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/International Soccer.b

```

in      74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Kool-Aid Man.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Lock 'n' Chase.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Masters of the Univers
e - The Power of He-Man.bin           74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Rocky & Bullwinkle (Pr
ototype).bin           74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Sea Battle.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Space Attack.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Star Strike.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Super Challenge Baseba
ll.bin           74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Super Challenge Footba
ll.bin           74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/Swordfight.bin
          74%      OK
Extracting HC ROMS/BY COMPANY/M Network - Mattel Electronics/TRON - Deadly Discs.bi
n           74%      OK
Creating   HC ROMS/BY COMPANY/Men-A-Vision                                OK
Extracting HC ROMS/BY COMPANY/Men-A-Vision/Air Raid (PAL).bin               7
          4%      OK
Creating   HC ROMS/BY COMPANY/Milton Bradley Company                      OK
Extracting HC ROMS/BY COMPANY/Milton Bradley Company/Spitfire Attack.bin     7
          4%      OK
Extracting HC ROMS/BY COMPANY/Milton Bradley Company/Survival Run.bin       7
          4%      OK
Creating   HC ROMS/BY COMPANY/Multivision                                 OK
Extracting HC ROMS/BY COMPANY/Multivision/Harem.bin                         7
          4%      OK
Creating   HC ROMS/BY COMPANY/Mystique - American Multiple Industries - JHM  OK
Extracting HC ROMS/BY COMPANY/Mystique - American Multiple Industries - JHM/Bachelo
r Party.bin           74%      OK
Extracting HC ROMS/BY COMPANY/Mystique - American Multiple Industries - JHM/Beat 'E
m & Eat 'Em.bin           74%      OK
Extracting HC ROMS/BY COMPANY/Mystique - American Multiple Industries - JHM/Burning
Desire (PAL).bin           74%      OK
Extracting HC ROMS/BY COMPANY/Mystique - American Multiple Industries - JHM/Custe
r's Revenge.bin           74%      OK
Creating   HC ROMS/BY COMPANY/Mythicon                                OK
Extracting HC ROMS/BY COMPANY/Mythicon/Fire Fly.bin                         7
          4%      OK
Extracting HC ROMS/BY COMPANY/Mythicon/Sorcerer.bin                       7
          4%      OK
Extracting HC ROMS/BY COMPANY/Mythicon/Star Fox.bin                        7
          4%      OK
Creating   HC ROMS/BY COMPANY/Other                                 OK
Extracting HC ROMS/BY COMPANY/Other/128 in 1 Game Select ROM.bin            7
          4%      OK
Extracting HC ROMS/BY COMPANY/Other/208 in 1 Game Select ROM (PAL).bin      7
          4%      OK
Extracting HC ROMS/BY COMPANY/Other/Morse Code Tutor.bin                  7
          4%      OK
Extracting HC ROMS/BY COMPANY/Other/VCS Draw Demo.bin                     7
          4%      OK
Creating   HC ROMS/BY COMPANY/Parker Brothers                            OK
Extracting HC ROMS/BY COMPANY/Parker Brothers/Amidar.bin                  7
          4%      OK
Extracting HC ROMS/BY COMPANY/Parker Brothers/Astro Chase (Prototype).bin    7
          74%      OK

```

Extracting HC ROMS/BY COMPANY/Parker Brothers/Care Bears (Prototype).bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Frogger II - Threedeep!.bin	
74% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Frogger.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/G.I. Joe - Cobra Strike.bin	
74% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Gyruss.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/James Bond 007.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Lord of the Rings, The - Journey to Rivendell (Prototype).bin	
74% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/McDonald's - Golden Arches Adventure (Prototype).bin	
74% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Montezuma's Revenge - Featuring Panama Joe.bin	
74% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Mr. Do!'s Castle.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Popeye.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Q-bert's Qubes.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Q-bert.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Reactor.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Sky Skipper.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Spider-Man.bin	7
4% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Star Wars - Jedi Arena.bin	7
5% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Star Wars - Return of the Jedi - Death Star Battle.bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Star Wars - Return of the Jedi - Ewok Adventure (Prototype).bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Star Wars - The Arcade Game.bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Star Wars - The Empire Strikes Back.bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Strawberry Shortcake - Musical Match-Ups.bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Super Cobra.bin	7
5% OK	
Extracting HC ROMS/BY COMPANY/Parker Brothers/Tutankham.bin	7
5% OK	
Creating HC ROMS/BY COMPANY/Personal Games Company	OK
Extracting HC ROMS/BY COMPANY/Personal Games Company/Birthday Mania.bin	7
5% OK	
Creating HC ROMS/BY COMPANY/Probe 2000 - North American Philips Consumer Electronics Corporation	OK
Extracting HC ROMS/BY COMPANY/Probe 2000 - North American Philips Consumer Electronics Corporation/Power Lords (Prototype).bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Probe 2000 - North American Philips Consumer Electronics Corporation/Pursuit of the Pink Panther (Prototype).bin	
75% OK	
Creating HC ROMS/BY COMPANY/Puzzy - Bit Corporation	OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Bobby Is Going Home (PAL) [demonstration cartridge].bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Bobby Is Going Home (PAL).bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Dancing Plate (PAL).bin	
75% OK	

```

Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Mission 3,000 A.D. (PAL) [dem
onstration cartridge].bin          75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Mission 3,000 A.D. (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Mr. Postman (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Open, Sesame! (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Phantom Tank (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Sea Monster (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Snail Against Squirrel (PAL).
bin          75%      OK
Extracting HC ROMS/BY COMPANY/Puzzy - Bit Corporation/Space Tunnel (PAL).bin
    75%      OK
Creating   HC ROMS/BY COMPANY/QDI - Selchow & Righter                  OK
Extracting HC ROMS/BY COMPANY/QDI - Selchow & Righter/Glib - Video Word Game.bin
    75%      OK
Creating   HC ROMS/BY COMPANY/Salu                                         OK
Extracting HC ROMS/BY COMPANY/Salu/Acid Drop (PAL).bin                      7
5%        OK
Extracting HC ROMS/BY COMPANY/Salu/Ghostbusters II (PAL) [different tune].bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Salu/Ghostbusters II (PAL).bin                  7
5%        OK
Extracting HC ROMS/BY COMPANY/Salu/Pick 'n' Pile (PAL).bin                   7
5%        OK
Creating   HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co                  OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Dice Puzzle (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Exocet (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Forest (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Nightmare (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Seahawk (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Skindiver (PAL).bin
    75%      OK
Extracting HC ROMS/BY COMPANY/Sancho - Tang's Electronic Co/Words-Attack (Prototyp
e) (PAL).bin          75%      OK
Creating   HC ROMS/BY COMPANY/SEGA                                         OK
Extracting HC ROMS/BY COMPANY/SEGA/Bear Game Demo.bin                         7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Buck Rogers - Planet of Zoom.bin           7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Congo Bongo.bin                          7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Ixion (Prototype).bin                     7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Spy Hunter.bin                           7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Star Trek - Strategic Operations Simulator.bin
    75%      OK
Extracting HC ROMS/BY COMPANY/SEGA/Sub-Scan.bin                            7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Tac-Scan.bin                           7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Tapper.bin                             7
5%        OK
Extracting HC ROMS/BY COMPANY/SEGA/Thunderground.bin                        7
5%        OK

```

Extracting HC ROMS/BY COMPANY/SEGA/Up 'n Down.bin	7
5% OK	
Creating HC ROMS/BY COMPANY/Simage	OK
Extracting HC ROMS/BY COMPANY/Simage/Eli's Ladder.bin	7
5% OK	
Creating HC ROMS/BY COMPANY/Skill Screen Games	OK
Extracting HC ROMS/BY COMPANY/Skill Screen Games/Extra Terrestrials.bin	7
5% OK	
Creating HC ROMS/BY COMPANY/Spectravision - Spectravideo	OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Bumper Bash.bin	
75% OK	
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Challenge of.... Nexar, The.bin	75% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Chase the Chuck Wagon.bn	75% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/China Syndrome.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/CompuMate.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Cross Force.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Gangster Alley [fixed].bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Gangster Alley.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Gas Hog [fixed].bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Gas Hog.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Mangia'.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Master Builder.bin	76% OK
Extracting HC ROMS/BY COMPANY/Spectravision - Spectravideo/Planet Patrol.bin	76% OK
Creating HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation	OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Communist Mutants from Space.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Dragonstomper.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Escape from the Mindmaster.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Fireball.bn	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Going-Up (Prototype).bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Killer Satellites.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Official Frogger, The.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Line, Handcar.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Phaser Patrol.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Rabbit Transport.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Suicide Mission.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Supercharger BIOS.bin	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Survival Island.bn	76% OK
Extracting HC ROMS/BY COMPANY/Starpath Corporation - Arcadia Corporation/Sweat! - T	

```

he Decathlon Game (Prototype).bin           76%      OK
Extracting HC ROMS/BY COMPANY/StarpAth Corporation - Arcadia Corporation/Sword of S
aros.bin          76%      OK
Creating   HC ROMS/BY COMPANY/Sunrise Software                      OK
Extracting HC ROMS/BY COMPANY/Sunrise Software/Quest for Quintana Roo.bin
  76%      OK
Creating   HC ROMS/BY COMPANY/Syncro, Inc                           OK
Extracting HC ROMS/BY COMPANY/Syncro, Inc/Kamikaze Saucers (Prototype).bin
  76%      OK
Creating   HC ROMS/BY COMPANY/TechnoVision                         OK
Extracting HC ROMS/BY COMPANY/TechnoVision/Nuts (PAL).bin          7
  6%      OK
Extracting HC ROMS/BY COMPANY/TechnoVision/Pharaoh's Curse (PAL).bin    7
  6%      OK
Extracting HC ROMS/BY COMPANY/TechnoVision/Save Our Ship (PAL).bin    7
  6%      OK
Creating   HC ROMS/BY COMPANY/Telegames                          OK
Extracting HC ROMS/BY COMPANY/Telegames/Glacier Patrol.bin          7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telegames/Universal Chaos.bin        7
  6%      OK
Creating   HC ROMS/BY COMPANY/Telesys                            OK
Extracting HC ROMS/BY COMPANY/Telesys/Bouncin' Baby Bunnies (Prototype).bin
  76%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Coco Nuts.bin              7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Cosmic Creeps.bin          7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Demolition Herby.bin        7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Fast Food.bin              7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Ram It.bin                 7
  6%      OK
Extracting HC ROMS/BY COMPANY/Telesys/Stargunner.bin            7
  6%      OK
Creating   HC ROMS/BY COMPANY/Tigervision                         OK
Extracting HC ROMS/BY COMPANY/Tigervision/Espial.bin             7
  6%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Jawbreaker.bin         7
  6%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/King Kong.bin          7
  6%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Marauder.bin           7
  6%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Miner 2049er - Starring Bounty Bob [fixe
d].bin          76%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Miner 2049er - Starring Bounty Bob.bin
  76%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Miner 2049er Volume II.bin    7
  7%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Polaris.bin            7
  7%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/River Patrol.bin         7
  7%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Springer.bin            7
  7%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Tapeworm.bin            7
  7%      OK
Extracting HC ROMS/BY COMPANY/Tigervision/Threshold.bin           7
  7%      OK
Creating   HC ROMS/BY COMPANY/U.S. Games Corporation                  OK
Extracting HC ROMS/BY COMPANY/U.S. Games Corporation/3-D Zapper (Prototype).bin
  77%      OK

```

Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Commando Raid.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Eggomania.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Entombed.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Gopher.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/M.A.D..bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Name This Game.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Picnic.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Piece o' Cake.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Raft Rider.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Sneak 'n Peek.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Space Jockey.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Squeeze Box.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Towering Inferno.bin	
77%	OK	
Extracting	HC ROMS/BY COMPANY/U.S. Games Corporation/Word Zapper.bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/UA Limited	OK
Extracting	HC ROMS/BY COMPANY/UA Limited/Cat Trax.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/UA Limited/Funky Fish (Prototype).bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/UA Limited/Pleiades (Prototype).bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/Ultravision	OK
Extracting	HC ROMS/BY COMPANY/Ultravision/Condor Attack.bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/Ultravision/Karate.bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/Universal Gamex Corporation	OK
Extracting	HC ROMS/BY COMPANY/Universal Gamex Corporation/X-Man.bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/VentureVision	OK
Extracting	HC ROMS/BY COMPANY/VentureVision/Rescue Terra I.bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/Video Gems	OK
Extracting	HC ROMS/BY COMPANY/Video Gems/Missile Control (PAL).bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/Video Gems/Mission Survive (PAL) [louder sounds].bin	
77%	OK	
Extracting	HC ROMS/BY COMPANY/Video Gems/Mission Survive (PAL).bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/Video Gems/Steeplechase (PAL).bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/Video Gems/Surfer's Paradise - But Danger Below! (PAL).bin	
77%	OK	
Extracting	HC ROMS/BY COMPANY/Video Gems/Treasure Below (PAL).bin	7
7%	OK	
Creating	HC ROMS/BY COMPANY/Video Soft	OK
Extracting	HC ROMS/BY COMPANY/Video Soft/Atom Smasher (Prototype).bin	7
7%	OK	
Extracting	HC ROMS/BY COMPANY/Video Soft/Color Bar Generator.bin	7
7%	OK	

```

Extracting HC ROMS/BY COMPANY/Video Soft/Golf Diagnostic (Prototype).bin      7
7%      OK
Creating  HC ROMS/BY COMPANY/Western Technologies                      OK
Extracting HC ROMS/BY COMPANY/Western Technologies/AndroMan on the Moon (Prototyp
e).bin      77%      OK
Creating  HC ROMS/BY COMPANY/Wizard Video Games                      OK
Extracting HC ROMS/BY COMPANY/Wizard Video Games/Halloween.bin           7
7%      OK
Extracting HC ROMS/BY COMPANY/Wizard Video Games/Texas Chainsaw Massacre, The (Prot
otype).bin      77%      OK
Extracting HC ROMS/BY COMPANY/Wizard Video Games/Texas Chainsaw Massacre, The.bin
77%      OK
Creating  HC ROMS/BY COMPANY/Xonox - K-Tel Software                      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Artillery Duel.bin        7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Chuck Norris Superkicks.bin
77%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Ghost Manor.bin         7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Motocross Racer.bin       7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Robin Hood.bin          7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Sir Lancelot.bin          7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Spike's Peak.bin          7
7%      OK
Extracting HC ROMS/BY COMPANY/Xonox - K-Tel Software/Tomarc the Barbarian.bin
77%      OK
Creating  HC ROMS/BY COMPANY/ZiMAG - Emag - Vidco                      OK
Extracting HC ROMS/BY COMPANY/ZiMAG - Emag - Vidco/Immies & Aggies (Prototype).bin
77%      OK
Extracting HC ROMS/BY COMPANY/ZiMAG - Emag - Vidco/Mysterious Thief, A (Prototype).
bin      77%      OK
Extracting HC ROMS/BY COMPANY/ZiMAG - Emag - Vidco/Pizza Chef (Prototype).bin
77%      OK
Extracting HC ROMS/BY COMPANY/ZiMAG - Emag - Vidco/Spinning Fireball (Prototype).bi
n      77%      OK
Creating  HC ROMS/BY COMPANY (PAL)                           OK
Creating  HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Bank Heist (PAL).b
in      77%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Crash Dive (PAL).b
in      77%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Earth Dies Screami
ng, The (PAL).bin      77%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Fantastic Voyage
(PAL).bin      78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Flash Gordon (PA
L).bin      78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/M.A.S.H (PAL).bin
78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Mega Force (PAL).b
in      78%      OK
Creating  HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Alien.bin      78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Alligator People (Prototype).bin      78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Beany Bopper.bin      78%      OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Crypts of Chaos.bin      78%      OK

```

Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Deadly Duck.bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Entity, The (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Heart Like a Wheel (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Lasercade (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Meltdown (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Pick Up (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Planet of the Apes (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Porky's.bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Revenge of the Beefsteak Tomatoes.bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/REMAINING NTSC ORI
GINALS/Save the Whales (Prototype).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/SpaceMaster X-7 (P
AL).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Turmoil (PAL).bin
78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Word Zapper (PAL).
bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/20th Century Fox Video Games/Worm War I (PAL).b
in 78% OK
Creating HC ROMS/BY COMPANY (PAL)/Absolute Entertainment OK
Extracting HC ROMS/BY COMPANY (PAL)/Absolute Entertainment/F-14 Tomcat (PAL).bin
78% OK
Extracting HC ROMS/BY COMPANY (PAL)/Absolute Entertainment/Pete Rose Baseball (PA
L).bin 78% OK
Extracting HC ROMS/BY COMPANY (PAL)/Absolute Entertainment/Skate Boardin' (PAL).bin
78% OK
Extracting HC ROMS/BY COMPANY (PAL)/Absolute Entertainment/Title Match Pro Wrestlin
g (PAL).bin 78% OK
Creating HC ROMS/BY COMPANY (PAL)/Activision OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Activision Decathlon, The (PAL).bin
78% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Barnstorming (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Beamrider (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Boxing (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Bridge (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Checkers (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Chopper Command (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Commando (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Crackpots (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Double Dragon (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Dragster (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Enduro (PAL).bin 7
8% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Fishing Derby (PAL).bin 7
8% OK

Extracting HC ROMS/BY COMPANY (PAL)/Activision/Freeway (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Frostbite (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Game Select (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Ghostbusters (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Grand Prix (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/H.E.R.O. (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Ice Hockey (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Kaboom! (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Keystone Kapers (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Kung-Fu Master (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Laser Blast (PAL).bin	7
8% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/MegaMania - A Space Nightmare (PAL).bin	7
78% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Oink! (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Pitfall II - Lost Caverns (PAL).bin	7
79% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Pitfall! (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Plaque Attack (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Pressure Cooker (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Private Eye (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Rampage! (PAL).bin	7
9% OK	
Creating HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS	OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Cosmic Computer.bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Dolphin.bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Hard-Head (Prototype).bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Kabobber (Prototype).bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Thwocker (Prototype).bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Unknown Activision Game (Prototype).bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/REMAINING NTSC ORIGINALS/Venetian Blinds Demo.bin	79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/River Raid (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/River Raid II (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Robot Tank (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Seaquest (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Skiing (PAL).bin	7
9% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Sky Jinks (PAL).bin	7

9% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Space Shuttle - A Journey Into Space (PAL).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Spider Fighter (PAL).bin 7
9% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Stampede (PAL).bin 7
9% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/StarMaster (PAL) [fixed].bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/StarMaster (PAL).bin 7
9% OK
Extracting HC ROMS/BY COMPANY (PAL)/Activision/Tennis (PAL).bin 7
9% OK
Creating HC ROMS/BY COMPANY (PAL)/Advanced Program Technology (NTSC ONLY) OK
Extracting HC ROMS/BY COMPANY (PAL)/Advanced Program Technology (NTSC ONLY)/Actiona
uts.bin 79% OK
Creating HC ROMS/BY COMPANY (PAL)/American Videogame (NTSC ONLY) OK
Extracting HC ROMS/BY COMPANY (PAL)/American Videogame (NTSC ONLY)/Tax Avoiders.bin 79% OK
Creating HC ROMS/BY COMPANY (PAL)/Amiga OK
Creating HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/3-D Genesis (Pro
totype).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/3-D Ghost Attack
(Prototype).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/3-D Havoc (Proto
type).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/Depth Charge (Pr
ototype).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/Mogul Maniac.bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/Off Your Rocker
(Prototype).bin 79% OK
Extracting HC ROMS/BY COMPANY (PAL)/Amiga/REMAINING NTSC ORIGINALS/Surf's Up (Proto

Extracting HC ROMS/BY COMPANY (PAL)/Apollo - Games by Apollo/REMAINING NTSC ORIGINA

LS/Wabbit.bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Apollo - Games by Apollo/Shark Attack (PAL).bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Apollo - Games by Apollo/Skeet Shoot (PAL).bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Apollo - Games by Apollo/Space Cavern (PAL).bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Apollo - Games by Apollo/Spacechase (PAL).bin	79%	OK	
Creating HC ROMS/BY COMPANY (PAL)/Atari - Sears		OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/3-D Tic-Tac-Toe (PAL).bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Adventure (PAL).bin	9%	OK	7
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Air-Sea Battle (PAL).bin	79%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Alpha Beam with Ernie (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Asterix (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Asteroids (PAL) [no copyright].bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Asteroids (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Backgammon (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Basic Math (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/BASIC Programming (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Basketball (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Battlezone (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Berzerk (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Big Bird's Egg Catch (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Blackjack (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/BMX Air Master (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Bowling (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Brain Games (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Breakout (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Canyon Bomber (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Casino (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Centipede (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Centipede (Prototype) (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Championship Soccer (PAL).bin	80%	OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Circus Atari (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Codebreaker (PAL).bin	0%	OK	8
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Colors (Prototype) (PAL).bin	80%	OK	

Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Combat (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Cookie Monster Munch (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Crossbow (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Crystal Castles (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Dark Chambers (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Defender (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Demons to Diamonds (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Desert Falcon (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Diagnostic Test Cartridge 2.6P (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Dig Dug (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Dodge 'Em (PAL) [fixed].bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Dodge 'Em (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Donald Duck's Speedboat (Prototype) (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Double Dunk (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Dumbo's Flying Circus (Prototype) (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/E.T. - The Extra-Terrestrial (PAL).bin	8
80% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Fatal Run (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Flag Capture (PAL).bin	8
0% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Football (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Frog Demo (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Galaxian (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Golf (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Hangman (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Haunted House (PAL).bin	8
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Homerun (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Human Cannonball (PAL).bin	8
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Hunt & Score (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Ikari Warriors (PAL).bin	8
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Indy 500 (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Joust (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Jr. Pac-Man (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Jungle Hunt (PAL).bin	8
1% OK	

Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Kangaroo (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Klax (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Los Angeles 1984 Games (Prototype) (PAL).bin	8
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Mario Bros. (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Math Gran Prix (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Maze Craze - A Game of Cops 'n Robbers (PAL).bin	8
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Midnight Magic (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Millipede (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Millipede (Prototype) (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Miniature Golf (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Missile Command (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Moon Patrol (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/MotoRodeo (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Ms. Pac-Man (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Night Driver (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Obelix (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Off the Wall (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Oscar's Trash Race (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Othello (PAL) [no grid markers].bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Othello (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Outlaw (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Pac-Man (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Pengo (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Phoenix (PAL).bin	8
1% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Pigs in Space - Starring Miss Piggy (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Pole Position (PAL).bin	
81% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Radar Lock (PAL).bin	8
2% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Raiders of the Lost Ark (PAL).bin	
82% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/RealSports Basketball (Prototype) (PAL).bin	
82% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/RealSports Boxing (PAL).bin	
82% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/RealSports Soccer (PAL).bin	
82% OK	
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/RealSports Tennis (PAL).bin	
82% OK	

Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/RealSports Volleyball (PAL).bin
82% OK
Creating HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Aquaventure (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Atari VC S Point-of-Purchase ROM.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Atari Video Cube.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Bionic Breakthrough.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Boggle (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Bugs Bunny (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Combat Two (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Computer Chess (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Crack'ed (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Crazy Cl imber.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Diagnostic Test Cartridge 2.0 (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Diagnostic Test Cartridge 4.2.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Dukes of Hazzard.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Dune (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Elevator Action (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Elf Adventure (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Elk Attack (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Firefox (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Football Demo.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Frog Pond (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Garfield (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Good Luck, Charlie Brown (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Gravitar.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Gremlin s.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Grover's Music Maker (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Holey Moley.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Krull.bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Mind Maze (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Miss Piggy's Wedding (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Monster Cise (Prototype).bin 82% OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Peek-A-B

```

oo (Prototype).bin          82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Pepsi Invaders.bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Polo (Prototype).bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Quadrupin.bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Racer (Prototype).bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/RealSports Baseball.bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/RealSports Football.bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Rubik's Cube 3-D (Prototype).bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Saboteur (Prototype).bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Sentinel.bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Sinistar (Prototype).bin      82%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Snow White (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Star Ship.pbin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Steeplechase.bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Stellar Track.bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Stunt Cycle (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Submarine Commander.bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/SwordQuest - WaterWorld.bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Telepathy (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Tempest (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Track and Field.bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Wizard (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Xevious (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/REMAINING NTSC ORIGINALS/Zoo Keeper Sounds (Prototype).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Road Runner (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Save Mary! (Prototype) (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Seawolf 3 (Prototype) (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Secret Quest (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Shooting Arcade (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Sky Diver (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Slot Machine (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Slot Racers (PAL).bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Snoopy and the Red Baron (PAL).bi

```

```
n          83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Solaris (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Sorcerer's Apprentice (PAL).bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Space Invaders (PAL) [different s
peed and colors].bin      83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Space Invaders (PAL) [fixed].bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Space Invaders (PAL).bin
83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Space War (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Sprint Master (PAL).bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Star Raiders (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Stargate (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Street Racer (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Super Baseball (PAL).bin
83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Super Breakout (PAL).bin
83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Super Football (PAL).bin
83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Superman (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Surround (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/SwordQuest - EarthWorld (PAL).bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/SwordQuest - FireWorld (PAL).bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Taz (Prototype) (PAL).bin
     83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Vanguard (PAL).bin           8
3%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Video Checkers (PAL).bin
83%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Video Chess (PAL).bin           8
4%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Video Olympics (PAL).bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Video Pinball (PAL).bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Warlords (PAL).bin           8
4%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Xenophobe (PAL).bin           8
4%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Atari - Sears/Yars' Revenge (PAL).bin
84%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)      OK
Extracting HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)/Death Trap.bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)/London Blitz.bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)/Out of Control.bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)/Shuttle Orbiter.bin
84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Avalon Hill (NTSC ONLY)/Wall Ball.bin
84%      OK
```

Creating HC ROMS/BY COMPANY (PAL)/Camelot - Johnson & Johnson (NTSC ONLY) OK
 Extracting HC ROMS/BY COMPANY (PAL)/Camelot - Johnson & Johnson (NTSC ONLY)/Tooth Protectors.bin 84% OK
 Creating HC ROMS/BY COMPANY (PAL)/Carrere Video OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Commando Raid (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Eggomania (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Gopher (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Infernal Tower (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/M.A.D. (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Octopus (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Picnic (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Sneak 'n Peek (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Carrere Video/Space Jockey (PAL).bin 8 4% OK
 Creating HC ROMS/BY COMPANY (PAL)/CBS Electronics OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Blueprint (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Carnival (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Donkey Kong (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Donkey Kong Junior (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Gorf (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Mouse Trap (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Mr. Do! (PAL).bin 8 4% OK
 Creating HC ROMS/BY COMPANY (PAL)/CBS Electronics/REMAINING NTSC ORIGINALS OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/REMAINING NTSC ORIGINALS/Kick-Man (Prototype).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/REMAINING NTSC ORIGINALS/Mountain King.bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/REMAINING NTSC ORIGINALS/Omega Race.bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/REMAINING NTSC ORIGINALS/Tunnel Runner.bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Roc 'n Rope (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Smurf (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Solar Fox (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Venture (PAL).bin 8 4% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Wings (Prototype) (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Wizard of Wor (PAL).bin 84% OK
 Extracting HC ROMS/BY COMPANY (PAL)/CBS Electronics/Zaxxon (PAL).bin 8 4% OK
 Creating HC ROMS/BY COMPANY (PAL)/CCE (NTSC ONLY) OK
 Extracting HC ROMS/BY COMPANY (PAL)/CCE (NTSC ONLY)/Stone Age.bin 8 4% OK
 Creating HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY) OK

```

Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Berenstain Bears.bin
    84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Cabbage Patch Kids - Adventures in the Park (Prototype).bin      84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Front Line.bin      8
    4%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Looping (Prototype).bin
    84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Smurfs Save the Day.bin
    84%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Time Pilot.bin      8
    4%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Coleco (NTSC ONLY)/Turbo (Prototype).bin
    84%      OK
Creating   HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/Cakewalk (PAL).bin
    85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/Cosmic Swarm (PAL).bin
    85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/Mines of Minos (PAL).bin
    85%      OK
Creating   HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS/MagiCard.bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS/Rush Hour (Prototype).bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS/Stronghold.bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS/Video Life [higher sounds].bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/REMAINING NTSC ORIGIN
ALS/Video Life.bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/CommaVid - Computer Magic/Room of Doom (PAL).bin
    85%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Control Video Corporation (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Control Video Corporation (NTSC ONLY)/GameLine
Master Module ROM.bin      85%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Data Age (NTSC ONLY)      OK
Extracting HC ROMS/BY COMPANY (PAL)/Data Age (NTSC ONLY)/Secret Agent (Prototype).bin
    85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Data Age (NTSC ONLY)/Survival Run (Prototype).bin
    85%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Datatech Enterprises Co (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Datatech Enterprises Co (NTSC ONLY)/Unknown Dat
atech Game.bin      85%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Dimax - Sinmax      OK
Extracting HC ROMS/BY COMPANY (PAL)/Dimax - Sinmax/Astrowar (PAL).bin      8
    5%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Dimax - Sinmax/Space Robot (PAL).bin      8
    5%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Dynacom (NTSC ONLY)      OK
Extracting HC ROMS/BY COMPANY (PAL)/Dynacom (NTSC ONLY)/MegaBoy.bin      8
    5%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Epyx      OK
Extracting HC ROMS/BY COMPANY (PAL)/Epyx/California Games (PAL).bin      8
    5%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Epyx/Summer Games (PAL).bin      8
    5%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Epyx/Winter Games (PAL).bin      8
    5%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Exus Corporation (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Exus Corporation (NTSC ONLY)/Video Jogger.bin
    85%      OK

```

Extracting HC ROMS/BY COMPANY (PAL)/Exus Corporation (NTSC ONLY)/Video Reflex [no roman numbers].bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Exus Corporation (NTSC ONLY)/Video Reflex.bin 85% OK
Creating HC ROMS/BY COMPANY (PAL)/First Star Software OK
Extracting HC ROMS/BY COMPANY (PAL)/First Star Software/Boing! (PAL).bin 5% OK
Creating HC ROMS/BY COMPANY (PAL)/First Star Software/REMAINING NTSC ORIGINALS 0 K
Extracting HC ROMS/BY COMPANY (PAL)/First Star Software/REMAINING NTSC ORIGINALS/Boing!.bin 85% OK
Creating HC ROMS/BY COMPANY (PAL)/Funvision - Fund. International Co OK
Extracting HC ROMS/BY COMPANY (PAL)/Funvision - Fund. International Co/Inca Gold (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Funvision - Fund. International Co/Time Warp (PAL).bin 85% OK
Creating HC ROMS/BY COMPANY (PAL)/Gakken - Konami OK
Extracting HC ROMS/BY COMPANY (PAL)/Gakken - Konami/Marine Wars (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gakken - Konami/Pooyan (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gakken - Konami/Strategy X (PAL).bin 5% OK
Creating HC ROMS/BY COMPANY (PAL)/Gameworks OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Airlock (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Bermuda Triangle (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Bugs (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Encounter at L-5 (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Frankenstein's Monster (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Sssnake (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/Gameworks/Warplock (PAL).bin 5% OK
Creating HC ROMS/BY COMPANY (PAL)/Gammation (NTSC ONLY) OK
Extracting HC ROMS/BY COMPANY (PAL)/Gammation (NTSC ONLY)/Gamma-Attack.bin 85% OK
Creating HC ROMS/BY COMPANY (PAL)/HES OK
Extracting HC ROMS/BY COMPANY (PAL)/HES/Challenge (PAL).bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/HES/My Golf (PAL) [fixed].bin 5% OK
Extracting HC ROMS/BY COMPANY (PAL)/HES/My Golf (PAL).bin 5% OK
Creating HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Asteroid Fire (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Base Attack (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Cosmic War (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Frisco (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Go Go Home Monster (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Lilly Adventure (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Panda Chase (PAL).bin 85% OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Parachute

```

(PAL).bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Racing Car
(PAL).bin      85%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Ski Hunt
(PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Sky Alien
(PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Tanks War
(PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Teddy Appl
e (PAL).bin    86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/Wall Break
(PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Home Vision - GEM International Corp/World End
(PAL).bin      86%      OK
Creating   HC ROMS/BY COMPANY (PAL)/HomeComputer Software Co (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/HomeComputer Software Co (NTSC ONLY)/Arkyology
(Prototype).bin 86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/HomeComputer Software Co (NTSC ONLY)/Music Mach
ine, The.bin   86%      OK
Creating   HC ROMS/BY COMPANY (PAL)/Imagic                               OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Atlantis (PAL).bin            8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Cosmic Ark (PAL) [selectable starfield].bin
86%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Cosmic Ark (PAL).bin            8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Demon Attack (PAL).bin          8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Dragonfire (PAL).bin           8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Fathom (PAL).bin              8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Fire Fighter (PAL).bin         8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Imagic Selector ROM (PAL).bin   8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Journey Escape (PAL).bin        8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Laser Gates (PAL).bin          8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Moonsweeper (PAL).bin           8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/No Escape! (PAL).bin            8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Quick Step! (PAL).bin          8
6%          OK
Creating   HC ROMS/BY COMPANY (PAL)/Imagic/REMAINING NTSC ORIGINALS  OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/REMAINING NTSC ORIGINALS/Atlantis II.bin
86%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/REMAINING NTSC ORIGINALS/Shootin' Galler
y.bin       86%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/REMAINING NTSC ORIGINALS/Sky Patrol (Pro
totype).bin 86%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Riddle of the Sphinx (PAL).bin
86%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Solar Storm (PAL).bin            8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Star Voyager (PAL).bin           8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Subterranea (PAL).bin            8
6%          OK
Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Trick Shot (PAL).bin             8
6%          OK

```

```

Extracting HC ROMS/BY COMPANY (PAL)/Imagic/Wing War (PAL).bin          8
6%      OK
Creating HC ROMS/BY COMPANY (PAL)/Inspirational Video Concepts (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Inspirational Video Concepts (NTSC ONLY)/Red Se
a Crossing.bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/James Wickstead Design Associates  OK
Extracting HC ROMS/BY COMPANY (PAL)/James Wickstead Design Associates/Euro Gen (PA
L).bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/James Wickstead Design Associates/REMAINING NTS
C ORIGINALS  OK
Extracting HC ROMS/BY COMPANY (PAL)/James Wickstead Design Associates/REMAINING NTS
C ORIGINALS/Music Demo.bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Burg
erTime.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Kool
-Aid Man.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Mast
ers of the Universe - The Power of He-Man.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Rock
y & Bullwinkle (Prototype).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Sea
Battle.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/M Network - Mattel Electronics (NTSC ONLY)/Swor
dfight.bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/Men-A-Vision          OK
Extracting HC ROMS/BY COMPANY (PAL)/Men-A-Vision/Air Raid (PAL).bin          8
6%      OK
Creating HC ROMS/BY COMPANY (PAL)/Milton Bradley Company (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Milton Bradley Company (NTSC ONLY)/Spitfire Att
ack.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Milton Bradley Company (NTSC ONLY)/Survival Ru
n.bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/Multivision (NTSC ONLY)          OK
Extracting HC ROMS/BY COMPANY (PAL)/Multivision (NTSC ONLY)/Harem.bin          8
6%      OK
Creating HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM
OK
Extracting HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM/B
eat 'Em & Eat 'Em (PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM/B
urning Desire (PAL).bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM/C
uster's Revenge (PAL).bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM/R
EMAINING NTSC ORIGINALS  OK
Extracting HC ROMS/BY COMPANY (PAL)/Mystique - American Multiple Industries - JHM/R
EMAINING NTSC ORIGINALS/Bachelor Party.bin      86%      OK
Creating HC ROMS/BY COMPANY (PAL)/Mythicron (NTSC ONLY)          OK
Extracting HC ROMS/BY COMPANY (PAL)/Mythicron (NTSC ONLY)/Fire Fly.bin          8
6%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Mythicron (NTSC ONLY)/Sorcerer.bin          8
6%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Mythicron (NTSC ONLY)/Star Fox.bin          8
6%      OK
Creating HC ROMS/BY COMPANY (PAL)/Other          OK
Extracting HC ROMS/BY COMPANY (PAL)/Other/208 in 1 Game Select ROM (PAL).bin
86%      OK
Creating HC ROMS/BY COMPANY (PAL)/Other/REMAINING NTSC ORIGINALS  OK
Extracting HC ROMS/BY COMPANY (PAL)/Other/REMAINING NTSC ORIGINALS/128 in 1 Game Se
lect ROM.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Other/REMAINING NTSC ORIGINALS/Morse Code Tuto
r.bin      86%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Other/REMAINING NTSC ORIGINALS/VCS Draw Demo.bi

```

n	86%	OK
Creating	HC ROMS/BY COMPANY (PAL)/Parker Brothers	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Action Man - Action Force (PA	
L).bin	86%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Amidar (PAL).bin	8
6%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Frogger (PAL).bin	8
6%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Frogger II - Threedeep! (PAL).	
bin	86%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Gyruss (PAL).bin	8
7%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Popeye (PAL).bin	8
7%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Q-bert (PAL).bin	8
7%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Reactor (PAL).bin	8
7%	OK	
Creating	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Astro	
Chase (Prototype).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Care B	
ears (Prototype).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Cubico	
lor (Prototype).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/James	
Bond 007.bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Lord o	
f the Rings, The - Journey to Rivendell (Prototype).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/McDona	
ld's - Golden Arches Adventure (Prototype).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Montez	
uma's Revenge - Featuring Panama Joe.bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Mr. D	
o!'s Castle.bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/REMAINING NTSC ORIGINALS/Q-ber	
t's Qubes.bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Sky Skipper (PAL).bin	
87%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Spider-Man (PAL).bin	8
7%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Star Wars - Jedi Arena (PAL).bi	
n	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Star Wars - Return of the Jedi	
- Death Star Battle (PAL).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Star Wars - Return of the Jedi	
- Ewok Adventure (PAL).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Star Wars - The Arcade Game (PA	
L).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Star Wars - The Empire Strikes	
Back (PAL).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Strawberry Shortcake - Musical	
Match-Ups (PAL).bin	87%	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Super Cobra (PAL).bin	
87%	OK	
Extracting	HC ROMS/BY COMPANY (PAL)/Parker Brothers/Tutankham (PAL).bin	8
7%	OK	
Creating	HC ROMS/BY COMPANY (PAL)/Personal Games Company (NTSC ONLY)	OK
Extracting	HC ROMS/BY COMPANY (PAL)/Personal Games Company (NTSC ONLY)/Birthday Man	
ia.bin	87%	OK
Creating	HC ROMS/BY COMPANY (PAL)/PlayAround - JHM	OK
Extracting	HC ROMS/BY COMPANY (PAL)/PlayAround - JHM/Knight on the Town (PAL).bin	
87%	OK	
Creating	HC ROMS/BY COMPANY (PAL)/PlayAround - JHM/REMAINING NTSC ORIGINALS	OK

Extracting HC ROMS/BY COMPANY (PAL)/PlayAround - JHM/REMAINING NTSC ORIGINALS/Catho
use Blues.bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/PlayAround - JHM/REMAINING NTSC ORIGINALS/PlayA
round Demo.bin 87% OK

Creating HC ROMS/BY COMPANY (PAL)/Probe 2000 - North American Philips Consumer El
ectronics Corporation (NTSC ONLY) 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Probe 2000 - North American Philips Consumer El
ectronics Corporation (NTSC ONLY)/Power Lords (Prototype).bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Probe 2000 - North American Philips Consumer El
ectronics Corporation (NTSC ONLY)/Pursuit of the Pink Panther (Prototype).bin
87% OK

Creating HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Bobby Is Going Home (PA
L) [demonstration cartridge].bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Bobby Is Going Home (PA
L).bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Dancing Plate (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Mission 3,000 A.D. (PA
L) [demonstration cartridge].bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Mission 3,000 A.D. (PA
L).bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Mr. Postman (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Open, Sesame! (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Phantom Tank (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Sea Monster (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Snail Against Squirrel
(PAL).bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Puzzy - Bit Corporation/Space Tunnel (PAL).bin
87% OK

Creating HC ROMS/BY COMPANY (PAL)/QDI - Selchow & Righter (NTSC ONLY) OK

Extracting HC ROMS/BY COMPANY (PAL)/QDI - Selchow & Righter (NTSC ONLY)/Glib - Vide
o Word Game.bin 87% OK

Creating HC ROMS/BY COMPANY (PAL)/Quelle OK

Extracting HC ROMS/BY COMPANY (PAL)/Quelle/Der moderne Ritter (PAL).bin 8
7% OK

Creating HC ROMS/BY COMPANY (PAL)/Salu OK

Extracting HC ROMS/BY COMPANY (PAL)/Salu/Acid Drop (PAL).bin 8
7% OK

Extracting HC ROMS/BY COMPANY (PAL)/Salu/Ghostbusters II (PAL) [different tune].bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Salu/Ghostbusters II (PAL).bin 8
7% OK

Extracting HC ROMS/BY COMPANY (PAL)/Salu/Pick 'n' Pile (PAL).bin 8
7% OK

Creating HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Dice Puzzle (PA
L).bin 87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Exocet (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Forest (PAL).bin
87% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Nightmare (PAL).b
in 88% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Seahawk (PAL).bin
88% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Skindiver (PAL).b
in 88% OK

Extracting HC ROMS/BY COMPANY (PAL)/Sancho - Tang's Electronic Co/Words-Attack (Pro
totype) (PAL).bin 88% OK

Creating HC ROMS/BY COMPANY (PAL)/SEGA OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Buck Rogers - Planet of Zoom (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Congo Bongo (PAL).bin 8
 8% OK
 Creating HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS/Bear Game Demo.bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS/Ixion (Prototype).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS/Spy Hunter.bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS/Tapper.bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/REMAINING NTSC ORIGINALS/Up 'n Down.bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Star Trek - Strategic Operations Simulator (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Sub-Scan (PAL).bin 8
 8% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Tac-Scan (PAL).bin 8
 8% OK
 Extracting HC ROMS/BY COMPANY (PAL)/SEGA/Thunderground (PAL).bin 8
 8% OK
 Creating HC ROMS/BY COMPANY (PAL)/Simage (NTSC ONLY) OK
 Extracting HC ROMS/BY COMPANY (PAL)/Simage (NTSC ONLY)/Eli's Ladder.bin 8
 8% OK
 Creating HC ROMS/BY COMPANY (PAL)/Skill Screen Games (NTSC ONLY) OK
 Extracting HC ROMS/BY COMPANY (PAL)/Skill Screen Games (NTSC ONLY)/Extra Terrestrial.ls.bin
 88% OK
 Creating HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Bumper Bash (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Challenge of.... N
 exar, The (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/China Syndrome (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/CompuMate (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Cross Force (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Gangster Alley (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Gas Hog (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Mangia' (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Master Builder (PAL).bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Planet Patrol (PAL) [different spaceship].bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Planet Patrol (PAL).bin
 88% OK
 Creating HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/REMAINING NTSC ORIGINALS OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/REMAINING NTSC ORIGINALS/Chase the Chuck Wagon.bin
 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Spectravision - Spectravideo/Tapeworm (PAL).bin
 88% OK
 Creating HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Comm
 unist Mutants from Space (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Drag
 onstomper (PAL).bin 88% OK

Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Escape from the Mindmaster (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Fireball (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Killer Satellites (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Official Frogger, The (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Part y Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Line, Handcar (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Phaser Patrol (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Rabbit Transit (PAL).bin 88% OK
 Creating HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/REMA INING NTSC ORIGINALS OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/REMA INING NTSC ORIGINALS/Going-Up (Prototype).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/REMA INING NTSC ORIGINALS/Supercharger BIOS.bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/REMA INING NTSC ORIGINALS/Sweat! - The Decathlon Game (Prototype).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Suicide Mission (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Supercharger BIOS (PAL).bin 88% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Survival Island (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Starpath Corporation - Arcadia Corporation/Sword of Saros (PAL).bin 89% OK
 Creating HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Criminal Pursuit (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Dragon Defender (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Farmyard Fun (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Firebug (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/I.Q. Memory Teaser (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Mole Hunter (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Motocross (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Ski Run (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Spectracube Invasion (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Treasure Island (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/UFO Patrol (PAL).bin 89% OK
 Extracting HC ROMS/BY COMPANY (PAL)/Suntek - Sunteck Co/Walker (PAL).bin 9% OK
 Creating HC ROMS/BY COMPANY (PAL)/Syncro, Inc (NTSC ONLY) OK
 Extracting HC ROMS/BY COMPANY (PAL)/Syncro, Inc (NTSC ONLY)/Kamikaze Saucers (Prototype).bin 89% OK
 Creating HC ROMS/BY COMPANY (PAL)/TechnoVision OK
 Extracting HC ROMS/BY COMPANY (PAL)/TechnoVision/Nuts (PAL).bin 9% OK
 Extracting HC ROMS/BY COMPANY (PAL)/TechnoVision/Pharaoh's Curse (PAL).bin 8

```

89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/TechnoVision/Save Our Ship (PAL).bin          8
9%       OK
Creating   HC ROMS/BY COMPANY (PAL)/Telegames                               OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Adventures on GX-12 (PAL).bin
89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Armor Ambush (PAL).bin           8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Astroblast (PAL).bin            8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Baseball (PAL).bin              8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Bogey Blaster (PAL).bin          8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Bump 'n' Jump (PAL).bin          8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Deadly Discs (PAL).bin           8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Football (PAL).bin              8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Frogs and Flies (PAL).bin         8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Glacier Patrol (PAL).bin          8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/International Soccer (PAL).bin
89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Lock 'n' Chase (PAL).bin          8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Night Stalker (PAL).bin           8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Quest for Quintana Roo (PAL).bin
89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Space Attack (PAL).bin            8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Star Strike (PAL).bin             8
9%       OK
Extracting HC ROMS/BY COMPANY (PAL)/Telegames/Universal Chaos (PAL).bin          8
9%       OK
Creating    HC ROMS/BY COMPANY (PAL)/Telesys                               OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/Cosmic Creeps (PAL).bin            8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/Demolition Herby (PAL).bin          8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/Fast Food (PAL).bin               8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/Ram It (PAL).bin                 8
9%       OK
Creating    HC ROMS/BY COMPANY (PAL)/Telesys/REMAINING NTSC ORIGINALS  OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/REMAINING NTSC ORIGINALS/Bouncin' Baby
Bunnies (Prototype).bin           89%      OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/REMAINING NTSC ORIGINALS/Coco Nuts.bin
89%      OK
Extracting  HC ROMS/BY COMPANY (PAL)/Telesys/Stargunner (PAL).bin              8
9%       OK
Creating    HC ROMS/BY COMPANY (PAL)/Tigervision                               OK
Extracting  HC ROMS/BY COMPANY (PAL)/Tigervision/Espial (PAL).bin                8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Tigervision/Jawbreaker (PAL).bin           8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Tigervision/King Kong (PAL).bin            8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Tigervision/Marauder (PAL).bin             8
9%       OK
Extracting  HC ROMS/BY COMPANY (PAL)/Tigervision/Miner 2049er - Starring Bounty Bob

```

```

(PAL).bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/Miner 2049er Volume II (PAL).bin
  89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/Polaris (PAL).bin          8
  9%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/Raft Rider (PAL).bin          8
  9%      OK
Creating  HC ROMS/BY COMPANY (PAL)/Tigervision/REMAINING NTSC ORIGINALS  OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/REMAINING NTSC ORIGINALS/River Patr
ol.bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/Springer (PAL).bin          8
  9%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Tigervision/Threshold (PAL).bin          8
  9%      OK
Creating  HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation          OK
Creating  HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/REMAINING NTSC ORIGINALS
OK
Extracting HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/REMAINING NTSC ORIGINAL
S/3-D Zapper (Prototype).bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/REMAINING NTSC ORIGINAL
S/Entombed.bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/REMAINING NTSC ORIGINAL
S/Piece o' Cake.bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/REMAINING NTSC ORIGINAL
S/Squeeze Box.bin          89%      OK
Extracting HC ROMS/BY COMPANY (PAL)/U.S. Games Corporation/Word Zapper (PAL).bin
  89%      OK
Creating  HC ROMS/BY COMPANY (PAL)/UA Limited (NTSC ONLY)          OK
Extracting HC ROMS/BY COMPANY (PAL)/UA Limited (NTSC ONLY)/Cat Trax.bin          8
  9%      OK
Extracting HC ROMS/BY COMPANY (PAL)/UA Limited (NTSC ONLY)/Funky Fish (Prototype).b
in          90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/UA Limited (NTSC ONLY)/Pleiades (Prototype).bin
  90%      OK
Creating  HC ROMS/BY COMPANY (PAL)/Ultravision          OK
Extracting HC ROMS/BY COMPANY (PAL)/Ultravision/Condor Attack (PAL).bin          9
  0%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Ultravision/Karate (PAL).bin          9
  0%      OK
Creating  HC ROMS/BY COMPANY (PAL)/Universal Gamex Corporation          OK
Extracting HC ROMS/BY COMPANY (PAL)/Universal Gamex Corporation/X-Man (PAL).bin
  90%      OK
Creating  HC ROMS/BY COMPANY (PAL)/VentureVision (NTSC ONLY)          OK
Extracting HC ROMS/BY COMPANY (PAL)/VentureVision (NTSC ONLY)/Rescue Terra I.bin
  90%      OK
Creating  HC ROMS/BY COMPANY (PAL)/Video Gems          OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Missile Control (PAL).bin          9
  0%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Mission Survive (PAL) [louder sound
s].bin          90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Mission Survive (PAL).bin          9
  0%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Steeplechase (PAL).bin          9
  0%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Surfer's Paradise - But Danger Belo
w! (PAL).bin          90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Gems/Treasure Below (PAL).bin          9
  0%      OK
Creating  HC ROMS/BY COMPANY (PAL)/Video Soft (NTSC ONLY)          OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Soft (NTSC ONLY)/Atom Smasher (Prototyp
e).bin          90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Soft (NTSC ONLY)/Color Bar Generator.bin
  90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Video Soft (NTSC ONLY)/Golf Diagnostic (Prototy

```

```

pe).bin          90%      OK
Creating HC ROMS/BY COMPANY (PAL)/Western Technologies (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Western Technologies (NTSC ONLY)/AndroMan on th
e Moon (Prototype).bin          90%      OK
Creating HC ROMS/BY COMPANY (PAL)/Wizard Video Games (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/Wizard Video Games (NTSC ONLY)/Halloween.bin
    90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Wizard Video Games (NTSC ONLY)/Texas Chainsaw M
assacre, The (Prototype).bin      90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Wizard Video Games (NTSC ONLY)/Texas Chainsaw M
assacre, The.bin          90%      OK
Creating HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software          OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Artillery Duel (PAL).bin
    90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Ghost Manor (PAL).bin
    90%      OK
Creating HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/REMAINING NTSC ORIGINALS
OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/REMAINING NTSC ORIGINAL
S/Motocross Racer.bin          90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/REMAINING NTSC ORIGINAL
S/Tomarc the Barbarian.bin      90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Robin Hood (PAL).bin
    90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Sir Lancelot (PAL).bin
    90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Spike's Peak (PAL).bin
    90%      OK
Extracting HC ROMS/BY COMPANY (PAL)/Xonox - K-Tel Software/Super Kung-Fu (PAL).bin
    90%      OK
Creating HC ROMS/BY COMPANY (PAL)/ZiMAG - Emag - Vidco (NTSC ONLY)  OK
Extracting HC ROMS/BY COMPANY (PAL)/ZiMAG - Emag - Vidco (NTSC ONLY)/Pizza Chef (Pr
ototype).bin          90%      OK
Extracting HC ROMS/Garfield.txt                                         9
0%      OK
Creating HC ROMS/NTSC VERSIONS OF PAL ORIGINALS          OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Assault (AKA Sky Alien) (1983) (B
omb - Onbase) (CA281).bin      90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Astrowar (Unknown).bin         9
0%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Bobby Is Going Home (1983) (Bit C
orporation) (PG206).bin      90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Burning Desire (1982) (PlayAround
- JHM) (202).bin          90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Cathouse Blues (1982) (PlayAround
- JHM) (201).bin          90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Challenge (Zellers).bin
    90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Crazy Ski (2600 Screen Search Con
sole) (Jone Yuan Telephonic Enterprise Co).bin      90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Dancing Plate (1982) (Bit Corpora
tion) (PG205).bin          90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Dice Puzzle (1983) (Panda) (106).
bin          90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/End of the World, The (2600 Scree
n Search Console) (Jone Yuan Telephonic Enterprise Co).bin      90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Fatal Run (Ultimate Driving) (198
9) (Atari - Sculptured Software, Steve Aguirre) (CX26162) (Prototype).bin         9
0%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Frisco (Unknown).bin         9
0%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Go Go Home (Unknown).bin
    90%      OK
Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Great Escape (AKA Asteroid Fire)

```

(1983) (Bomb - Onbase) (CA282).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/IQ 180 (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Klax (08-18-1990) (Atari - Axlon, Steve DeFrisco) (CX26192) (Prototype).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Knight on the Town (1982) (PlayAround - JHM) (203).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Lilly Adventure (Unknown).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Mission 3,000 A.D. (1983) (Bit Corporation) (PG207).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Mr. Postman (1983) (Bit Corporation) (PG209).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Nightmare (1983) (Sancho - Tang's Electronic Co.) (TEC004).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Nuts (Unknown).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Open, Sesame! (1982) (Bit Corporation) (PG204).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Phantom Tank (1982) (Bit Corporation) (PG203).bin 90% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Pharaoh's Curse (Unknown).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Racing Car (Unknown).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Radar (AKA Exocet) (Zellers).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Save Our Ship (Unknown).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Scuba Diver (AKA Skindiver) (Zellers).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Sea Hawk (AKA Seahawk) (Zellers).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Sea Monster (1982) (Bit Corporation) (PG201).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Snail Against Squirrel (1983) (Bit Corporation) (PG208).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Space Tunnel (1982) (Bit Corporation) (PG202).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Spider Maze (AKA Inca Gold) (1982) (K-Tel Vision).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Time Warp (1982) (Funvision - Fund. International Co.).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Topy (2600 Screen Search Console) (Jone Yuan Telephonic Enterprise Co).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Wall-Defender (AKA Wall Break) (1983) (Bomb - Onbase) (CA285).bin 91% OK
 Extracting HC ROMS/NTSC VERSIONS OF PAL ORIGINALS/Z-Tack (AKA Base Attack) (1983) (Bomb - Onbase) (CA283).bin 91% OK
 Creating HC ROMS/PAL VERSIONS OF NTSC ORIGINALS OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/3-D Tic-Tac-Toe (1980) (Atari, Carol Shaw) (CX2618, CX2618P) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Action Man - Action Force (AKA G.I. Joe - Cobra Strike) (Paddle) (1983) (Parker Brothers, John Emerson) (931511) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Activision Decathlon, The - Zehnkampf (1983) (Activision, David Crane - Ariola) (EAZ-030, EAZ-030-04B, EAZ-030-04I - 711 030-725) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Adventure (1980) (Atari, Warren Robinett) (CX2613, CX2613P) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Adventures on GX-12 (AKA Adventures of TRON) (1988) (Telegames) (4317 A009) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Air-Sea Battle - Air Sea Battle (Anti-Aircraft) (1977) (Atari, Larry Kaplan) (CX2602, CX2602P) (PAL).bin 91%

1% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Airlock (1983) (Gameworld) (133-04) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Alpha Beam with Ernie (Alpha Beam) (Kid's Controller) (1983) (Atari - CCW, Michael Callahan, Preston Stuart) (CX26103) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Amidar (1982) (Parker Brothers, Ed Temple) (931504) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Armor Ambush (1988) (Telegames) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Artillery Duel (1983) (Xonox - K-Tel Software - Action Graphics, Michael Schwartz, David Thiel) (6230, 7210, 06004, 99004) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Asterix (AKA Taz) (1984) (Atari, Jerome Domurat, Steve Woita) (CX2696) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Asteroids (1981) (Atari, Brad Stewart) (CX2649, CX2649P) (PAL) [no copyright].bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Asteroids (1981) (Atari, Brad Stewart) (CX2649, CX2649P) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Astroblast (Paddle) (1988) (Telegames) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Atlantis (Lost City of Atlantis) (1982) (Imagic, Dennis Koble) (720103-2A, IA3203P, EIX-010-04I) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Backgammon (Paddle) (1979) (Atari, Craig Nelson) (CX2617, CX2617P) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bank Heist (Unknown) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Barnstorming - Die tollkeuhnen Flieger (1982) (Activision, Steve Cartwright - Ariola) (EAX-013, PAX-013 - 711 013-720) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Baseball (AKA Super Challenge Baseball) (1988) (Telegames) (5665 A016) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Basic Math (Math Pack) (1977) (Atari, Gary Palmer) (CX2661) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/BASIC Programming (Keyboard Controller) (1979) (Atari, Warren Robinett) (CX2620, CX2620P) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Basketball (1978) (Atari, Alan Miller) (CX2624, CX2624P) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Battlezone (1983) (Atari - GCC, Mike Feinstein, Brad Rice) (CX2681, CX2681P) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Beamrider (1984) (Activision - Cheshire Engineering, David Rolfe, Larry Zwick) (EAZ-037-04, EAZ-037-04I) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Beat 'Em & Eat 'Em (Paddle) (1982) (Mystique - American Multiple Industries - JHM) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bermuda Triangle (1983) (Gameworld, J. Ray Dettling) (133-007) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Berzerk (1982) (Atari, Dan Hitche) (CX2650) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Big Bird's Egg Catch (Grover's Egg Catch) (Kid's Controller) (1983) (Atari - CCW, Christopher H. Omarzu) (CX26104) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Blackjack (Gambling) (Paddle) (1977) (Atari, Bob Whitehead) (CX2651) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Blueprint (1983) (CBS Electronics, Tom DiDomenico) (4L2477, 4L2482, 4L2485, 4L4171) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/BMX Air Master (1989) (TNT Games - Sculptured Software, Adam Clayton) (26192) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bogey Blaster (AKA Air Raiders) (1988) (Telegames) (5861 A030) (PAL).bin 91% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Boing! (Bubbles, Soap Suds, The Emphysema Game) (1983) (First Star Software, Alex Leavens, Shirley Ann Russell) (PA

L).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bowling (1979) (Atari, Larry Kaplan) (CX2628, CX2628P) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Boxing - Box-Champion (1980) (Activision, Bob Whitehead - Ariola) (EAG-002, EAG-002-04I, PAG-002 - 711 002-715) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Brain Games (Keyboard Controller) (1978) (Atari, Larry Kaplan) (CX2664, CX2664P) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Breakout (Paddle) (1978) (Atari, Brad Stewart) (CX2622, CX2622P) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bridge (1980) (Activision, Larry Kaplan - Ariola) (EAX-006, PAX-006 - 771 006-720) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Buck Rogers - Planet of Zoom (1983) (SEGA - Teldec) (005-01 - 3.60104 VG) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bugs (Paddle) (1983) (Gameworks) (133-005) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bump 'n' Jump (1988) (Telegames) (7045 A015) (PAL).bin 91% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Bumper Bash (Paddle) (1983) (Spectravideo, David Lubar) (SA-218, SA-218C) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cakewalk - Alarm in der Backstube (Bakery) (1983) (CommaVid, Irwin Gaines - Ariola) (CM-008 - 712 008-720) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/California Games (1987) (Epyx, Steven A. Baker, Peter Engelbrite) (80561-00286) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Canyon Bomber (Unknown) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Carnival (1983) (CBS Electronics - Woodside Design Associates, Steve 'Jessica Stevens' Kitchen) (4L1717, 4L1718, 4L1719, 4L2277) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Casino (Paddle) (1979) (Atari, Bob Whitehead) (CX2652, CX2652P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Centipede (1982) (Atari - GCC) (CX2676) (Prototype) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Centipede (1983) (Atari - GCC) (CX2676) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Challenge of.... Naxar, The (1982) (Spectravision - Spectravideo - Sirius Software, David Lubar) (SA-206) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Championship Soccer (1980) (Atari, Steve Wright) (CX2616P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Checkers (32 in 1) (1988) (Atari) (CX26163P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/China Syndrome (1982) (Spectravision - Spectravideo) (SA-205) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Chopper Command - Captain Helicopter (1982) (Activision, Bob Whitehead - Ariola) (EAX-015, EAX-015-04I - 711 015-725) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Circus Atari (Paddle) (1980) (Atari, Mike Lorenzen) (CX2630, CX2630P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Codebreaker (Numbers) (Keyboard Controller) (1978) (Atari) (CX2643) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Combat (Tank) (1977) (Atari, Joe Decuir, Larry Kaplan, Steve Mayer, Larry Wagner) (CX2601, CX2601P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Commando (1988) (Activision - Imagineering, Mike Reidel) (EAK-043-04I) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Commando (AKA Front Line) (Edu Games - Edu Juegos) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Commando Raid (1983) (Carrere Video - JWDA, Todd Marshall, Wes Trager, Henry Will IV - Teldec - Prism) (USC1004) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Communist Mutants from Space (Galactic Egg) (1982) (Starpath Corporation, Stephen H. Landrum) (2) (AR-4101) (PAL).bin

92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/CompuMate (1983) (Spectravideo - Universum) (SV-010) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Condor Attack (1982) (Ultravisio n) (1043) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Congo Bongo (1983) (SEGA - Beck-T ech, Steve Beck, Phat Ho - Teldec) (006-01 - 3.60105 VG) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cookie Monster Munch (Cookie Monst er's Maze, Cookie Monster's Garden) (Kid's Controller) (1983) (Atari - CCW, Gary Sta rk) (CX26102) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-2A, IA3204P, EIX-008-04I) (PAL) [selectable starfield].bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cosmic Ark (Reaction) (1982) (Imagic, Rob Fulop) (720104-2A, IA3204P, EIX-008-04I) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cosmic Creeps (Space Maze, Spaze Maze) (1982) (Telesys, Don 'Donyo' Ruffcorn) (1002) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cosmic Swarm - Angriff der Termit en (Termite) (1982) (CommaVid, John Bronstein - Ariola) (CM-003 - 712 003-720) (PA L).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Crackpots (Unknown) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Crash Dive (Voyage to the Bottom of the Sea) (1983) (20th Century Fox Video Games, Bill Aspromonte) (11131) (PAL).bi n 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Criminal Pursuit (AKA A Mysterious Thief) (1983) (Suntek) (SS-036) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Cross Force - Kreuzfeuer (Cross F ire) (1982) (Spectravision - Spectravideo - Quelle) (SA-203 - 413.223 9) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Crossbow (1988) (Atari - Imagineering, Dan Kitchen) (CX26139P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Crystal Castles (1984) (Atari, Michael Kosaka, Peter C. Niday, Robert Vieira) (CX26110) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Custer's Revenge (1982) (Mystique - American Multiple Industries - JHM) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dark Chambers (Dungeon, Dungeon Masters) (1989) (Atari - Sculptured Software, Adam Clayton) (CX26151, CX26151P) (PA L).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Deadly Discs (AKA TRON - Deadly Discs) (1988) (Telegames) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Defender (1982) (Atari, Robert C. Polaro, Alan J. Murphy) (CX2609, CX2609P) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Demolition Herby (1983) (Telesys, Don Ruffcorn) (1006) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Demon Attack (Death from Above) (1982) (Imagic, Rob Fulop) (720101-2B, IA3200P, EIX-006-04I) (PAL).bin 9 2% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Demons to Diamonds (Hot Rox) (Pad dle) (1982) (Atari, Alan J. Murphy, Nick 'Sandy Maiwald' Turner) (CX2615) (PAL).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Der moderne Ritter - Mr. T (AKA Fast Eddie) (1983) (Quelle - Otto Versand) (700.223 1 - 781627) (PAL).bin 9 2% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Desert Falcon (Nile Flyer, Sphinx) (1987) (Atari - Bobco, Robert C. Polaro) (CX26140, CX26140P) (PAL).bin 9 2% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Diagnostic Test Cartridge 2.6P (1 982) (Atari) (TE016643) (PAL) (4K).bin 92% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dig Dug (1983) (Atari - GCC, Av-Robin Cohen, Douglas B. Macrae) (CX2677, CX2677P) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dodge 'Em (Head On) (1980) (Atar

i, Carla Meninsky) (CX2637, CX2637P) (PAL) [fixed].bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dodge 'Em (Head On) (1980) (Atari, Carla Meninsky) (CX2637, CX2637P) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Donald Duck's Speedboat (Donald Duck's Sailboat Regatta) (04-18-1983) (Atari, Dave Joly, Suki Lee) (CX26108) (Prototype) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Donkey Kong (1983) (CBS Electronics - Woodside Design Associates - Imaginative Systems Software, Garry Kitchen) (4L1700, 4L1701, 4L1702, 4L1802, 4L2274) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Donkey Kong Junior (1983) (CBS Electronics - Woodside Design Associates, Harley H. Puthuff Jr.) (4L1802) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Double Dragon (1989) (Activision - Imagineering, Donald Hahn, Dan Kitchen) (EAK-050-04) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Double Dunk (Super Basketball) (1989) (Atari, Matthew L. Hubbard) (CX26159) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dragonfire (Cheese) (1982) (Imagineering, Bob Smith) (720020-2A, IA3611P) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dragonstomper (Excalibur) (1982) (Starpath Corporation, Stephen H. Landrum) (6) (AR-4400) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dragster - Dragster Rennen (Drag Strip) (1980) (Activision, David Crane - Ariola) (EAG-001, PAG-001, EAG-001-04B, EAG-001-04I - 711 001-715) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Dumbo's Flying Circus (Dumbo Flies Home) (07-11-1983) (Atari, Jerome Domurat, Peter C. Niday) (CX26115) (Prototype) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/E.T. - The Extra-Terrestrial (1982) (Atari, Jerome Domurat, Howard Scott Warshaw) (CX2674) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Earth Dies Screaming, The (Unknown) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Eggomania - Eierregen (Paddle) (1983) (Carrere Video - JWDA, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV - Teldec - Prism) (USC2003) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Encounter at L-5 (Megalon Invasion) (Paddle) (1983) (Gameworld) (133-001) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Enduro - Transamerika-Rennen (1983) (Activision, Larry Miller - Ariola) (EAX-026, EAX-026-04B, EAX-026-04I - 711 026-725) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Escape from the Mindmaster (Labyrinth) (1982) (Starpath Corporation, Dennis Caswell) (5) (AR-4200) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Espial (1984) (Tigervision - Telderic) (7-012 - 3.60016 VC) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/F-14 Tomcat (1988) (Absolute Entertainment, Dan Kitchen) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fantastic Voyage (Unknown) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fast Food (1982) (Telesys, Don Ruffcorn, Jack Woodman) (1003) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fathom (Scuba) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Rob Fulop) (720111-2A, 13205) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fire Fighter (Fire Fighters) (1982) (Imagic, Brad Stewart) (720105-2A, IA3400P, EIX-005-04I) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fireball (Frantic) (Paddle) (1982) (Starpath Corporation, Scott Nelson) (3) (AR-4300) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Firebug (AKA Spinning Fireball) (1983) (Suntek) (SS-028) (PAL).bin 93% OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Fishing Derby - Schneller als der Wind (1983) (Suntek) (SS-029) (PAL).bin 93% OK

Hai (1980) (Activision, David Crane - Ariola) (EAG-004, PAG-004 - 711 004-715) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Flag Capture (32 in 1) (1988) (Atari, Jim Huether) (CX26163P) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Flash Gordon (Unknown) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Football (AKA Super Challenge Football) (1988) (Telegames) (5658 A088) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Football (Unknown) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Frankenstein's Monster (1983) (Gameworld, J. Ray Dettling) (133-008) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Freeway - Das verrueckte Huhn (1981) (Activision, David Crane - Ariola) (EAG-009, PAG-009 - 711 009-720) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Frogger (1982) (Parker Brothers, Ed English, David Lamkins) (931502) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Frogger II - Threedeep! (1984) (Parker Brothers, Mark Lesser) (PB5590) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Frogs and Flies (1988) (Telegames) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Frostbite - Expedition ins Eis (Iceman) (1983) (Activision, Steve Cartwright - Ariola) (EAX-031, EAX-031-04B - 711 031-717) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Galaxian (1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684, CX2684P) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Gangster Alley - Gangster Ruine (1982) (Spectravision - Spectravideo - Quelle) (SA-201 - 412.783 3) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Gas Hog - Piraten Schiff (1983) (Spectravideo, Mark Turmell - Quelle) (SA-217, SA-217C - 413.723 8) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ghost Manor (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 06002, 06004, 99002) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ghostbusters (1985) (Activision, David Crane, Dan Kitchen) (EAG-108-04, EAZ-108-04B) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Glacier Patrol (1988) (Telegames - VSS, Ed Salvo) (5665 A016) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Golf (Championship Golf) (1980) (Atari, Tom Reuterdahl) (CX2634, CX2634P) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Gopher - Vorsicht Wühlmaus! (1983) (Carrere Video - JWDA, Sylvia Day, Todd Marshall, Robin McDaniel, Henry Will IV - Teldec - Prism) (USC2001) (PAL).bin 93% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Gorf (1982) (CBS Electronics - Roklan, Joe Gaucher, Dan Kurczewski, Alex Leavens, Kathy Von) (4L1751, 4L1752, 4L1753, 4L2275) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Grand Prix (1982) (Activision, David Crane - Ariola) (EAX-014, PAX-014, EAX-014-04B, EAX-014-04I - 711 014-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Gyruss (1984) (Parker Brothers - Roklan, Joe Gaucher) (PB5080) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/H.E.R.O. - Helicopter-Held (1984) (Activision, John Van Ryzin - Ariola) (EAZ-036-04, EAZ-036-04B, EAZ-036-04I - 711 036-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Hangman (1978) (Atari, Alan Miller) (CX2662P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Haunted House (Mystery Mansion, Graves' Manor, Nightmare Manor) (1982) (Atari, James Andreasen) (CX2654) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Homerun - Horrrorun (32 in 1) (1988) (Atari, Bob Whitehead) (CX26163P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Human Cannonball (1979) (Atari)

(CX2627, CX2627P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Hunt & Score (Keyboard Controller) (1978) (Atari, Alan Miller) (CX2642) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ice Hockey - Eishockey (1981) (Activision, Alan Miller - Ariola) (EAG-012-04I, EAX-012, EAX-012-04B - 711 012-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ikari Warriors (1991) (Atari - Imagineering, Dan Kitchen) (CX26177) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Imagic Selector ROM (1982) (Imagic) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Indy 500 (Race Car) (Driving Controller) (1977) (Atari, Carla Meninsky, Ed Riddle) (CX2611, CX2611P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Infernall Tower (AKA Towering Inferno) (1983) (Carrere Video - Western Technologies, Jeff Corsiglia, Paul Allen Newell, Tom Sloper - Teldec - Prism) (USC1009) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Infiltrete - Nid d'espions (1982) (Apollo - Games by Apollo - RCA Video Jeux) (AP-2006) (PAL).bin 94% 0K
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/International Soccer (1988) (Telegames) (5687 A279) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Jawbreaker (1982) (Tigervision, John Harris - Teldec) (7-002 - 3.60002 VE) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Journey Escape - Rock 'n' Roll Escape (1983) (Gameworld, J. Ray Dettling) (133-006) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Joust (1983) (Atari - GCC, Mike Feinstein, Kevin Osborn) (CX2691, CX2691P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Jr. Pac-Man (1986) (Atari - GCC, Ava-Robin Cohen) (CX26123, CX26123P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Jungle Hunt (1983) (Atari - GCC, John Allred, Mike Feinstein) (CX2688, CX2688P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Kaboom! - Schneller als der Knall (Paddle) (1981) (Activision, Larry Kaplan, David Crane - Ariola) (EAG-010, PAG-010 - 711 010-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Kangaroo (1983) (Atari - GCC, Kevin Osborn) (CX2689, CX2689P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Karate (1982) (Funvision - Fund. International Co.) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Keystone Kapers - Raueber und Gendarm (1983) (Activision, Garry Kitchen - Ariola) (EAX-025, EAX-025-04I - 711 025-725) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Killer Satellites (1983) (Starpath Corporation, Kevin Norman) (7) (AR-4103) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger - Teldec) (7-001 - 3.60001 VE) (PAL) [a].bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger - Teldec) (7-001 - 3.60001 VE) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Knight on the Town (1982) (Playaround - JHM) (203) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Krull (Edu Games - Edu Juegos) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Kung-Fu Master (1987) (Activision - Imagineering, Dan Kitchen, Garry Kitchen) (EAX-039-04B, EAX-039-04I) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Laser Blast - Duell im Weltall (Lazer) (1981) (Activision, David Crane - Ariola) (EAG-008, PAG-008, EAG-008-04I - 711 008-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Laser Gates (AKA Innerspace) (1983) (Imagic, Dan Oliver) (720118-2A, 13208, EIX-007-04I) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Lock 'n' Chase (1988) (Telegames) (PAL).bin 94% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Los Angeles 1984 Games (AKA Track and Field) (Track & Field Controller) (1984) (Atari - GCC, Jaques Hugon, Seth Lipkin) (CX26125) (Prototype) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Lost Luggage - La valise piégée (Airport Mayhem) (1982) (Apollo - Games by Apollo, Larry Minor, Ernie Runyon, Ed Salvio - RCA Video Jeux) (AP-2004) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/M.A.D. (1983) (Carrere Video - Western Technologies, John Hall - Teldec - Prism) (USC1012) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/M.A.S.H (1983) (20th Century Fox Video Games, Frank Cohen, Douglas 'Dallas North' Neubauer) (11111) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mangia' (1983) (Spectravideo) (SA-212) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Marauder (1982) (Tigervision, Rorre Weigandt - Teldec) (7-005 - 3.60004 VE) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Marine Wars (1983) (Gakken) (011) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mario Bros. (1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2697, CX2697P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Master Builder - Super Baumeister (1983) (Spectravideo - Quelle) (SA-210 - 413.582 8) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Math Gran Prix (Math Game) (1982) (Atari, Suki Lee) (CX2658) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Maze Craze - A Game of Cops 'n Robbers (The Maze) (1980) (Atari, Richard Maurer) (CX2635, CX2635P) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mega Force (1982) (20th Century Fox Video Games, Douglas 'Dallas North' Neubauer) (11105) (PAL) [a].bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mega Force (1982) (20th Century Fox Video Games, Douglas 'Dallas North' Neubauer) (11105) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/MegaMania - A Space Nightmare - Ein Alptraum im Weltall (1982) (Activision, Steve Cartwright - Ariola) (EAX-017, EAX-017-04I - 711 017-720) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Midnight Magic (Pinball Wizard) (1986) (Atari, Glenn Axworthy) (CX26129) (PAL).bin 94% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Millipede (1984) (Atari - GCC) (CX26118) (Prototype) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Millipede (1984) (Atari, Jerome Domurat, Andrew Fuchs, Dave Staugas, Robert Vieira) (CX26118, CX26118P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Miner 2049er - Starring Bounty Bob (1983) (Tigervision - Teldec) (7-008 - 3.60006 VG) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Miner 2049er Volume II (1983) (Tigervision - Teldec) (7-011 - 3.60015 VG) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mines of Minos - Im Labyrinth des Roboters (1982) (CommaVid, Irwin Gaines - Ariola) (CM-005 - 712 005-720) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Miniature Golf (1979) (Atari, Tom Reuterdahl) (CX2626, CX2626P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Missile Command (1981) (Atari, Rob Fulop) (CX2638) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Moon Patrol (1983) (Atari - GCC, Mark Ackerman, Noelia Alito) (CX2692, CX2692P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Moonsweeper (1983) (Imagic, Bob Smith) (720114-2A, 13207, EIZ-001-04I) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/MotoRodeo (Motor Olympics, Motor Rodeo) (1991) (Atari - Axlion, Steve DeFrisco) (CX26171) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mouse Trap (1983) (CBS Electronics - JWDA, Sylvia Day, Todd Marshall, Robin McDaniel, Henry Will IV) (4L1818, 4L1819, 4L1820, 4L1821) (PAL).bin 95% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Mr. Do! (1983) (CBS Electronics - Individeo, Ed English) (4L4478) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ms. Pac-Man (1983) (Atari - GCC, Mark Ackerman, Glenn Parker) (CX2675, CX2675P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Night Driver (Paddle) (1980) (Atari, Rob Fulop) (CX2633, CX2633P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Night Stalker (AKA Dark Cavern) (1988) (Telegames) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/No Escape! (Escape from Argos) (1983) (Imagic, Michael Greene) (720055-2A, IA3312P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Obelix (1984) (Atari, Andrew Fuchs, Jeffrey Gusman, Dave Joly, Suki Lee) (CX26117) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Octopus (AKA Name This Game) (1983) (Carrere Video - JWDA, Roger Booth, Sylvia Day, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV - Teldec - Prism) (USC1007) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Off the Wall (Bizarre Breakout, Peasant King, Zip 'n' Zap) (1989) (Atari - Axlon, John Vifian) (CX26168) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Official Frogger, The (1983) (Starpath Corporation, Stephen H. Landrum) (9) (AR-4105) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Oink! - Das Schweinchen und der Wolf (1983) (Activision, Mike Lorenzen - Ariola) (EAX-023 - 711 023-720) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Oscar's Trash Race (Kid's Controler) (1984) (Atari - CCW, Christopher H. Omarzu, Preston Stuart, Bruce Williams) (CX26101) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Othello (1981) (Atari, Ed Logg, Carol Shaw) (CX2639, CX2639P) (PAL) [no grid markers].bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Othello (1981) (Atari, Ed Logg, Carol Shaw) (CX2639, CX2639P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Outlaw (1978) (Atari, David Crane) (CX2605, CX2605P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pac-Man (1982) (Atari, Tod Frye) (CX2646) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Party Mix - Bop a Buggy, Tug of War, Wizard's Keep, Down on the Line, Handcar (Paddle) (1983) (Starpath Corporation, Dennis Caswell) (10) (AR-4302) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pengo (1984) (Atari, Andrew Fuchs, Courtney Granner, Jeffrey Gusman, Mark R. Hahn) (CX2690) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pete Rose Baseball (HES - Absolute Entertainment) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Phantompanzer II (AKA Thunderground) (1983) (Quelle) (343.273 9) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Phaser Patrol (1982) (Starpath Corporation, Dennis Caswell) (1) (AR-4000, AR-4100) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Phoenix (1983) (Atari - GCC, Mike Feinstein, John Mracek) (CX2673, CX2673P) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Picnic (Paddle) (1983) (Carrere Video - Western Technologies, Jeff Corsiglia, David Johnson, Tom Sloper - Teldec - Prism) (USC2004) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pigs in Space - Starring Miss Piggy (1983) (Atari, Bill Aspromonte, Dave Joly, John Russell, Michael Sierchio, Robert Zdybel) (CX26114) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pitfall II - Lost Caverns (1984) (Activision, Steve Cartwright, David Crane - Ariola) (EAB-035-04 - 711 035-721) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pitfall! - Abenteuer im Urwald (Jungle Runner) (1982) (Activision, David Crane - Ariola) (EAX-018, EAX-018-04B, EAX-018-04I - 711 018-725) (PAL).bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Planet Patrol - Planeten Patrouille (1982) (Spectravision - Spectravideo - Quelle) (SA-202 - 412.851 8) (PAL) [different spaceship].bin 95% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Planet Patrol - Planeten Patrouille

```

ie (1982) (Spectravision - Spectravideo - Quelle) (SA-202 - 412.851 8) (PAL).bin
    95%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Plaque Attack - Schutzt Eure Zaeh
ne (1983) (Activision, Steve Cartwright - Ariola) (EAX-027 - 711 027-722) (PAL).bin
    95%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Polaris (1983) (Tigervision, Robe
rt H. O'Neil - Teldec) (7-007 - 3.60005 VG) (PAL).bin      95%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pole Position (RealSports Drivin
g) (1983) (Atari - GCC, John Allred, Douglas B. Macrae, Betty Ryan Tylko) (CX2694, C
X2694P) (PAL).bin      95%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pooyan (1983) (Gakken) (001) (PA
L).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Popeye (1983) (Parker Brothers -
Roklan, Joe Gaucher) (931519) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Pressure Cooker (1983) (Activisio
n, Garry Kitchen - Ariola) (EAZ-032 - 771 032-712) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Private Eye (1984) (Activision, B
ob Whitehead) (EAZ-034-04, EAZ-034-04I) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Q-bert (1983) (Parker Brothers -
Western Technologies, Dave Hampton, Tom Sloper) (931517) (PAL).bin      9
6%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Quest for Quintana Roo (1988) (Te
legames - VSS) (6057 A227) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Quick Step! (Hop To It, Kwibble)
(1983) (Imagic, Dave Johnson) (720119-2A, 13211, EIX-004-04I) (PAL).bin      9
6%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Rabbit Transit (Hopalong Catastro
phe) (1983) (Starpath Corporation, Brian McGhie) (8) (AR-4104) (PAL).bin      9
6%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Racquetball (1982) (Apollo - Game
s by Apollo, Ed Salvo, Byron Parks) (AP-2003) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Radar Lock (Dog Fight) (1989) (At
ari, Douglas Neubauer) (CX26176) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Raft Rider (Unknown) (PAL).bin
    96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Raiders of the Lost Ark (1982) (A
tari, Jerome Domurat, Howard Scott Warshaw) (CX2659) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Ram It (1983) (Telesys, Jim Rupp)
(1004) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Rampage! (1989) (Activision - Bob
co, Robert C. Polaro) (EAK-049-04B) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Reactor (1983) (Parker Brothers,
Charlie Heath) (931506) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/RealSports Boxing (1987) (Atari -
Imagineering, Alex DeMeo) (CX26135, CX26135P) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/RealSports Soccer - Football - Re
alSports Soccer (1983) (Atari, Jerome Domurat, Michael Sierchio) (CX2667, CX2667P)
(PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/RealSports Tennis (1983) (Atari -
GCC) (CX2680, CX2680P) (PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/RealSports Volleyball (1982) (Ata
ri, Jim Huether, Alan J. Murphy, Robert C. Polaro) (CX2666, CX2666P) (PAL).bin
    96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Riddle of the Sphinx (1982) (Imag
ic, Rob Fulop, Bob Smith) (720106-2A, IA3600P, EIX-009-04I) (PAL).bin      9
6%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/River Raid - Jagdflieger (1982)
(Activision, Carol Shaw - Ariola) (EAX-020, EAX-020-04B, EAX-020-04I - 711 020-720)
(PAL).bin      96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/River Raid II (1988) (Activision
- Imagineering, Dan Kitchen, David Lubar) (EAK-048-04, EAK-048-04B) (PAL).bin
    96%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Road Runner (1989) (Atari - Bobc
o, Robert C. Polaro) (CX2663) (PAL).bin      96%      OK

```

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Robin Hood (1983) (Xonox - K-Tel Software - Computer Magic) (99005, 6220, 6250) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Robot Tank - Rebellion der Roboter (Robotank) (1983) (Activision, Alan Miller - Ariola) (EAZ-028 - 711 028-725) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Roc 'n Rope (1984) (CBS Electronics - Individeo, Ed English) (4L1751) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Room of Doom - Raum ohne Ausweg (1982) (CommaVid, Irwin Gaines - Ariola) (CM-004 - 712 004-720) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/S.A.C. Alert (Joyboard) (1983) (Amiga - Video Soft) (3135) (Prototype) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Save Mary! (Saving Mary) (10-24-1991) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26178) (Prototype) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Seaquest - Rettung aus der Tiefe (1983) (Activision, Steve Cartwright - Ariola) (EAX-022, EAX-022-04I - 711 022-720) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Seawolf 3 (Submarine Commander Beta) (03-23-1981) (Sears Tele-Games, Marilyn Churchill, Matthew L. Hubbard) (CX2647 - 49-75142) (Prototype) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Secret Quest (1989) (Atari - Axlon, Steve DeFrisco) (CX26170, CX26170P) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Shark Attack (AKA Lochjaw) (1982) (Apollo - Games by Apollo, Steve Stringfellow) (AP-2005) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Shooting Arcade (Light Gun) (01-16-1990) (Atari - Axlon, Tod Frye - Heuristica, Agustin Ortiz Valdiviezo) (CX26169) (Prototype) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sir Lancelot (1983) (Xonox - K-Tel Software - Product Guild, Anthony R. Henderson) (99006, 6220) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Skate Boardin' (1987) (Absolute Entertainment, David Crane) (EAZ-042-04B, EAZ-042-04I) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Skeet Shoot (1981) (Apollo - Games by Apollo, Ed Salvo) (AP-1001) (PAL) (4K).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Skiing - Ski Weltcup (1980) (Activision, Bob Whitehead - Ariola) (EAG-005, PAG-005, EAG-005-04B - 711 005-715) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sky Diver (1979) (Atari, Jim Huether) (CX2629, CX2629P) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sky Jinks - Wettflug gegen die Zeit (1982) (Activision, Bob Whitehead - Ariola) (EAG-019, EAG-019-04I - 711 019-715) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sky Skipper (1983) (Parker Brothers) (931510) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Slot Machine (1979) (Atari, David Crane) (CX2653P) (PAL).bin 96% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Slot Racers (1978) (Atari, Warren Robinett) (CX2606, CX2606P) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Smurf - Schtroumpfs - Pitufo (1983) (CBS Electronics - JWDA, Todd Marshall, Robin McDaniel, Henry Will IV) (4L1767, 4L1768, 4L1769, 4L1770) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sneak 'n Peek - Der Unsichtbare (1983) (Carrere Video - JWDA, Garry Kitchen, Paul Willson - Teldec - Prism) (USC1002) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Snoopy and the Red Baron (1983) (Atari, Ed Bogas, Sam Comstock, Richard Dobbis, Nick 'Sandy Maiwald' Turner) (CX2611) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Solar Fox (1983) (CBS Electronics, Bob Curtiss) (4L1852, 4L1853, 4L1854, 4L1855) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Solar Storm (Paddle) (1983) (Imagic, Wilfredo Aguilar, Michael Becker, Dennis Koble) (720113-2A, 13206) (PAL).bin

97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Solaris (The Last Starfighter, Star Raiders II, Universe) (1986) (Atari, Douglas Neubauer, Mimi Nyden) (CX26136) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sorcerer's Apprentice (1983) (Atari, Dave Joly, Peter C. Niday, Robert Vieira) (CX26109) (PAL).bin 97%
 OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Attack (1988) (Telegames) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Cavern - Les guerriers de l'espace (1982) (Apollo - Games by Apollo, Dan Oliver - RCA Video Jeux) (AP-2002) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PAL) [different speed and colors].bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PAL) [fixed].bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Invaders (1980) (Atari, Richard Maurer) (CX2632, CX2632P) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Jockey (1983) (Carrere Video - JWDA, Garry Kitchen - Teldec - Prism) (USC1001) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Robot (Dimax - Simmax) (SM8001) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space Shuttle - A Journey Into Space - Eine Reise ins All (1983) (Activision - Woodside Design Associates, Steve 'Jessica Stevens' Kitchen - Ariola) (EAZ-033 - 711 033-725) (PAL).bin 97%
 OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Space War (1978) (Atari, Ian Shepard) (CX2604, CX2604P) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Spacechase (Space Attack) (1982) (Apollo - Games by Apollo, Ed Salvo, Byron Parks) (AP-2001) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/SpaceMaster X-7 (Unknown) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Spectracube Invasion (AKA Immies & Aggies) (1983) (Suntek) (SS-025) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Spider Fighter - Monster greifen an (1983) (Activision, Larry Miller - Ariola) (EAX-021, EAX-021-04I - 711 021-720) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Spider-Man (1982) (Parker Brothers, David Lamkins, Laura Nikolich) (931503) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Spike's Peak (1983) (Xonox - K-Tel Software - Beck-Tech, Steve Beck) (6210, 7210, 06003. 99001) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Springer (1983) (Tigervision - Software Electronics Corporation - Teldec - Prism) (7-006 - 3.60008 VG) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sprint Master (Sprint 88, Sprint 2600) (1988) (Atari - Bobco, Robert C. Polaro) (CX26155P) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sssnake (1983) (Gameworld) (133-003) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Stampede - Lasso-Helden (1981) (Activision, Bob Whitehead - Ariola) (EAG-011, PAG-011 - 711 011-715) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Raiders (Video Touch Pad) (1982) (Atari, Carla Meninsky) (CX2660) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Strike (1988) (Telegames) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Trek - Strategic Operations Simulator (1983) (SEGA, Jeff Lorenz - Teldec) (004-01 - 3.60103 VG) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Voyager (1982) (Imagic, Bob Smith) (720102-2B, IA3201P, EIX-011-04I) (PAL).bin 97% OK

Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Wars - Jedi Arena (Paddle) (1983) (Parker Brothers, Rex Bradford) (931507) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Wars - Return of the Jedi - Death Star Battle (Revenge of the Jedi - Game II) (1983) (Parker Brothers - JWDA, T odd Marshall, Robin McDaniel, Ray Miller) (931513) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Wars - Return of the Jedi - Ewok Adventure (Revenge of the Jedi - Game I) (1983) (Parker Brothers, Larry Gelberg) (PB5065) (Prototype) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Wars - The Arcade Game (1984) (Parker Brothers, Wilfredo Aguilar, Michael Becker, Neil McKenzie, Bob Smith, Brad Stewart) (PB5540) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Star Wars - The Empire Strikes Back (1982) (Parker Brothers, Rex Bradford, Sam Kjellman) (931501) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Stargate (1984) (Atari, Bill Aspremonte, Andrew Fuchs) (CX26120) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Stargunner (1983) (Telesys, Alex Leavens) (1005) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/StarMaster - Kommando Galaxis (1982) (Activision, Alan Miller - Ariola) (EAX-016, PAX-016 - 711 016-725) (PAL) [fixe d].bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/StarMaster - Kommando Galaxis (1982) (Activision, Alan Miller - Ariola) (EAX-016, PAX-016 - 711 016-725) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Strategy X (1983) (Gakken) (010) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Strawberry Shortcake - Musical Match-Ups (1983) (Parker Brothers, Dawn Stockbridge) (PB5910) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Street Racer (Wheels) (Paddle) (1977) (Atari, Larry Kaplan) (CX2612, CX2612P) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sub-Scan (Unknown) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Subterranea (Tarantula) (1983) (Imagic, Mark Klein) (EIZ-003-04I) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Suicide Mission (Meteoroids) (1982) (Starpath Corporation, Steve Hales, Stephen H. Landrum) (4) (AR-4102) (PAL).bin 97% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Summer Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbrite) (80561-00250) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Super Baseball (1988) (Atari, Miami Nyden, Joseph Tung) (CX26152) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Super Breakout (Paddle) (1982 - 1981) (Atari, Carol Shaw, Nick 'Sandy Maiwald' Turner) (CX2608) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Super Cobra (1983) (Parker Brothers - Roklan, Paul Crowley, Bob Curtiss) (931505) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Super Football (1988) (Atari, Douglas Neubauer) (CX26154, CX26154P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Super Kung-Fu (1983) (Xonox - K-Tel Software - VSS, Robert Weatherby) (6230, 6250) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Supercharger BIOS (1982) (Arcadia Corporation) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Superman (1979) (Atari, John Dunn) (CX2631, CX2631P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Surround (1977) (Blockade) (Atari, Alan Miller) (CX2641, CX2641P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Survival Island (Jungle Raid) (1983) (Starpath Corporation, Steve Mundry, Scott Nelson) (12) (AR-4401) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Sword of Saros (1983) (Starpath Corporation, Stephen H. Landrum, Jon Leupp) (11) (AR-4201) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/SwordQuest - EarthWorld (Adventure)

e I, SwordQuest I - EarthWorld) (1982) (Atari, Dan Hitchens, Mimi Nyden) (CX2656) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/SwordQuest - FireWorld (Adventure II, SwordQuest II - FireWorld) (1983) (Atari, Tod Frye, Mimi Nyden) (CX2657) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Tac-Scan (Unknown) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Tapeworm (1982) (Spectravision - Spectravideo) (SA-204) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Taz (Tazz) (06-15-1983) (Atari, Jerome Domurat, Steve Woita) (CX2699) (Prototype) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Tennis (1981) (Activision, Alan Miller - Ariola) (EAG-007, EAG-007-04I, PAG-007 - 711 007-720) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Threshold (1982) (Tigervision, Warren Schwader - Teldec - Prism) (7-003 - 3.60003 VE) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Time Pilot (Edu Games - Edu Juegos) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Title Match Pro Wrestling - Pro Wrestling (1987) (Absolute Entertainment, Alex DeMeo) (EAZ-041-04I) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Trick Shot (1982) (Imagic, Dennis Koble) (720100-2B, IA3000P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Turmoil (Unknown) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Tutankham (1983) (Parker Brothers, Dave Engman, Dawn Stockbridge) (931509) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/UFO Patrol (AKA X'Mission) (1983) (Suntek) (SS-031) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Universal Chaos (AKA Targ) (1988) (Telegames - VSS) (7062 A305) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Vanguard (1983) (Atari - GCC, Dave Payne) (CX2669, CX2669P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Venture (1983) (CBS Electronics, Joseph Biel) (4L1802, 4L1803, 4L1804, 4L2278) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Video Checkers - Atari Video Checkers (1980) (Atari, Carol Shaw) (CX2636, CX2636P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Video Chess (Computer Chess) (1979) (Atari, Larry Wagner, Bob Whitehead) (CX2645, CX2645P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Video Olympics (Paddle) (1977) (Atari, Joe Decuir) (CX2621, CX2621P) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Video Pinball (1981) (Atari, Bob Smith) (CX2648) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Warlords (Kings in the Corner) (Paddle) (1981) (Atari, Carla Meninsky) (CX2610) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Warplock (Paddle) (1983) (Gameworld) (133-002) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Wings (10-10-1983) (CBS Electronics, Stuart Ross) (Prototype) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Winter Games (1987) (Epyx, Steven A. Baker, Tod Frye, Peter Engelbrite) (80561-00251) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Wizard of Wor (1982) (CBS Electronics - Roklan, Joe Hellesen, Joe Wagner) (4L1720, 4L1721, 4L1722, 4L2276) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Word Zapper (Unknown) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Worm War I (Unknown) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/X-Man (1983) (Universal Gamex Corporation, Miguel Castillo, H.K. Poon) (GX-001) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Xenophobe (1991) (Atari) (CX26172) (PAL).bin 98% OK
 Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Yars' Revenge (Time Freeze) (1988)

```

2) (Atari, Howard Scott Warshaw) (CX2655, CX2655P) (PAL).bin          98%      OK
Extracting HC ROMS/PAL VERSIONS OF NTSC ORIGINALS/Zaxxon (1983) (CBS Electronics)
(4L1784, 4L1786, 4L1787, 4L2277) (PAL).bin          98%      OK
All OK
mv: cannot stat 'HC ROMS.zip': No such file or directory
mv: cannot stat 'ROMS.zip': No such file or directory
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libxxf86dga1
Suggested packages:
  mesa-utils
The following NEW packages will be installed:
  libxxf86dga1 x11-utils xvfb
0 upgraded, 3 newly installed, 0 to remove and 40 not upgraded.
Need to get 993 kB of archives.
After this operation, 2,982 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu bionic/main amd64 libxxf86dga1 amd64 2:1.1.4-1 [13.7 kB]
Get:2 http://archive.ubuntu.com/ubuntu bionic/main amd64 x11-utils amd64 7.7+3build1 [196 kB]
Get:3 http://archive.ubuntu.com/ubuntu bionic-updates/universe amd64 xvfb amd64 2:1.19.6-1ubuntu4.10 [784 kB]
Fetched 993 kB in 0s (3,395 kB/s)
Selecting previously unselected package libxxf86dga1:amd64.
(Reading database ... 155501 files and directories currently installed.)
Preparing to unpack .../libxxf86dga1_2%3a1.1.4-1_amd64.deb ...
Unpacking libxxf86dga1:amd64 (2:1.1.4-1) ...
Selecting previously unselected package x11-utils.
Preparing to unpack .../x11-utils_7.7+3build1_amd64.deb ...
Unpacking x11-utils (7.7+3build1) ...
Selecting previously unselected package xvfb.
Preparing to unpack .../xvfb_2%3a1.19.6-1ubuntu4.10_amd64.deb ...
Unpacking xvfb (2:1.19.6-1ubuntu4.10) ...
Setting up xvfb (2:1.19.6-1ubuntu4.10) ...
Setting up libxxf86dga1:amd64 (2:1.1.4-1) ...
Setting up x11-utils (7.7+3build1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for libc-bin (2.27-3ubuntu1.3) ...
/sbin/ldconfig.real: /usr/local/lib/python3.7/dist-packages/ideep4py/lib/libmkldnn.so.0 is not a symbolic link

Collecting pyvirtualdisplay
  Downloading PyVirtualDisplay-3.0-py3-none-any.whl (15 kB)
Installing collected packages: pyvirtualdisplay
Successfully installed pyvirtualdisplay-3.0
Collecting ray[rllib]
  Downloading ray-1.12.0-cp37-cp37m-manylinux2014_x86_64.whl (53.2 MB)
|██████████| 53.2 MB 190 kB/s
Requirement already satisfied: tensorflow in /usr/local/lib/python3.7/dist-packages (2.8.0)
Requirement already satisfied: torch in /usr/local/lib/python3.7/dist-packages (1.1.0+cu111)
Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.24.0)
Requirement already satisfied: keras<2.9,>=2.8.0rc0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.8.0)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.44.0)
Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (4.1.1)
Collecting tf-estimator-nightly==2.8.0.dev2021122109
  Downloading tf_estimator_nightly-2.8.0.dev2021122109-py2.py3-none-any.whl (462 kB)

```

|██████████| 462 kB 52.5 MB/s

Requirement already satisfied: astunparse>=1.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.6.3)

Requirement already satisfied: flatbuffers>=1.12 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.0)

Requirement already satisfied: wrapt>=1.11.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.14.0)

Requirement already satisfied: opt-einsum>=2.3.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.3.0)

Requirement already satisfied: protobuf>=3.9.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.17.3)

Requirement already satisfied: gast>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.5.3)

Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.15.0)

Requirement already satisfied: h5py>=2.9.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (3.1.0)

Requirement already satisfied: absl-py>=0.4.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.0.0)

Requirement already satisfied: keras-preprocessing>=1.1.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.1.2)

Requirement already satisfied: tensorboard<2.9,>=2.8 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (2.8.0)

Requirement already satisfied: numpy>=1.20 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.21.6)

Requirement already satisfied: setuptools in /usr/local/lib/python3.7/dist-packages (from tensorflow) (57.4.0)

Requirement already satisfied: google-pasta>=0.1.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (0.2.0)

Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (1.1.0)

Requirement already satisfied: libclang>=9.0.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow) (13.0.0)

Requirement already satisfied: wheel<1.0,>=0.23.0 in /usr/local/lib/python3.7/dist-packages (from astunparse>=1.6.0->tensorflow) (0.37.1)

Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packages (from h5py>=2.9.0->tensorflow) (1.5.2)

Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (2.23.0)

Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (0.6.1)

Requirement already satisfied: werkzeug>=0.11.15 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (1.0.1)

Requirement already satisfied: google-auth<3,>=1.6.3 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (1.35.0)

Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (0.4.6)

Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (1.8.1)

Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.9,>=2.8->tensorflow) (3.3.6)

Requirement already satisfied: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.9,>=2.8->tensorflow) (4.2.4)

Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.9,>=2.8->tensorflow) (0.2.8)

Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard<2.9,>=2.8->tensorflow) (4.8)

Requirement already satisfied: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.9,>=2.8->tensorflow) (1.3.1)

Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/dist-packages (from markdown>=2.6.8->tensorboard<2.9,>=2.8->tensorflow) (4.11.3)

Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<2.9,>=2.8->tensorflow)

```
(3.8.0)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-
-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.9,>=2.8-
>tensorflow) (0.4.8)
Requirement already satisfied: urllib3!=1.25.0,!<1.25.1,<1.26,>=1.21.1 in /usr/loca
1/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.9,>=2.8->tens
orflow) (1.24.3)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-pa
ckages (from requests<3,>=2.21.0->tensorboard<2.9,>=2.8->tensorflow) (3.0.4)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-package
s (from requests<3,>=2.21.0->tensorboard<2.9,>=2.8->tensorflow) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-p
ackages (from requests<3,>=2.21.0->tensorboard<2.9,>=2.8->tensorflow) (2021.10.8)
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-pac
kages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<
2.9,>=2.8->tensorflow) (3.2.0)
Requirement already satisfied: filelock in /usr/local/lib/python3.7/dist-packages (f
rom ray[rllib]) (3.6.0)
Requirement already satisfied: msgpack<2.0.0,>=1.0.0 in /usr/local/lib/python3.7/dis
t-packages (from ray[rllib]) (1.0.3)
Requirement already satisfied: attrs in /usr/local/lib/python3.7/dist-packages (from
ray[rllib]) (21.4.0)
Collecting grpcio<2.0,>=1.24.3
  Downloading grpcio-1.43.0-cp37-cp37m-manylinux_2_17_x86_64.manylinux2014_x86_64.wh
l (4.1 MB)
    [██████████] 4.1 MB 40.6 MB/s
Collecting frozenlist
  Downloading frozenlist-1.3.0-cp37-cp37m-manylinux_2_5_x86_64.manylinux1_x86_64.man
ylinux_2_17_x86_64.manylinux2014_x86_64.whl (144 kB)
    [██████████] 144 kB 55.2 MB/s
Collecting virtualenv
  Downloading virtualenv-20.14.1-py2.py3-none-any.whl (8.8 MB)
    [██████████] 8.8 MB 46.8 MB/s
Requirement already satisfied: pyyaml in /usr/local/lib/python3.7/dist-packages (fro
m ray[rllib]) (3.13)
Requirement already satisfied: jsonschema in /usr/local/lib/python3.7/dist-packages
 (from ray[rllib]) (4.3.3)
Requirement already satisfied: click>=7.0 in /usr/local/lib/python3.7/dist-packages
 (from ray[rllib]) (7.1.2)
Collecting aiosignal
  Downloading aiosignal-1.2.0-py3-none-any.whl (8.2 kB)
Requirement already satisfied: scikit-image in /usr/local/lib/python3.7/dist-package
s (from ray[rllib]) (0.18.3)
Requirement already satisfied: scipy in /usr/local/lib/python3.7/dist-packages (from
ray[rllib]) (1.4.1)
Requirement already satisfied: pandas in /usr/local/lib/python3.7/dist-packages (fr
om ray[rllib]) (1.3.5)
Requirement already satisfied: dm-tree in /usr/local/lib/python3.7/dist-packages (fr
om ray[rllib]) (0.1.7)
Requirement already satisfied: gym<0.22 in /usr/local/lib/python3.7/dist-packages (f
rom ray[rllib]) (0.17.3)
Requirement already satisfied: tabulate in /usr/local/lib/python3.7/dist-packages (f
rom ray[rllib]) (0.8.9)
Collecting lz4
  Downloading lz4-4.0.0-cp37-cp37m-manylinux_2_17_x86_64.manylinux2014_x86_64.whl
(1.2 MB)
    [██████████] 1.2 MB 50.4 MB/s
Collecting tensorboardX>=1.9
  Downloading tensorboardX-2.5-py2.py3-none-any.whl (125 kB)
    [██████████] 125 kB 56.0 MB/s
Requirement already satisfied: matplotlib!=3.4.3 in /usr/local/lib/python3.7/dist-pa
ckages (from ray[rllib]) (3.2.2)
Requirement already satisfied:云pickle<1.7.0,>=1.2.0 in /usr/local/lib/python3.
7/dist-packages (from gym<0.22->ray[rllib]) (1.3.0)
```

```
Requirement already satisfied: pyglet<=1.5.0,>=1.4.0 in /usr/local/lib/python3.7/dist-packages (from gym<0.22->ray[rllib]) (1.5.0)
Requirement already satisfied: pyparsing!=2.0.4,!>=2.1.2,!>=2.1.6,>=2.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib!=3.4.3->ray[rllib]) (3.0.8)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib!=3.4.3->ray[rllib]) (1.4.2)
Requirement already satisfied: python-dateutil>=2.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib!=3.4.3->ray[rllib]) (2.8.2)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.7/dist-packages (from matplotlib!=3.4.3->ray[rllib]) (0.11.0)
Requirement already satisfied: future in /usr/local/lib/python3.7/dist-packages (from pyglet<=1.5.0,>=1.4.0->gym<0.22->ray[rllib]) (0.16.0)
Requirement already satisfied: pyrsistent!=0.17.0,!>=0.17.1,!>=0.17.2,>=0.14.0 in /usr/local/lib/python3.7/dist-packages (from jsonschema->ray[rllib]) (0.18.1)
Requirement already satisfied: importlib-resources>=1.4.0 in /usr/local/lib/python3.7/dist-packages (from jsonschema->ray[rllib]) (5.7.0)
Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from pandas->ray[rllib]) (2022.1)
Requirement already satisfied: tifffile>=2019.7.26 in /usr/local/lib/python3.7/dist-packages (from scikit-image->ray[rllib]) (2021.11.2)
Requirement already satisfied: pillow!=7.1.0,!>=7.1.1,>=4.3.0 in /usr/local/lib/python3.7/dist-packages (from scikit-image->ray[rllib]) (7.1.2)
Requirement already satisfied: PyWavelets>=1.1.1 in /usr/local/lib/python3.7/dist-packages (from scikit-image->ray[rllib]) (1.3.0)
Requirement already satisfied: networkx>=2.0 in /usr/local/lib/python3.7/dist-packages (from scikit-image->ray[rllib]) (2.6.3)
Requirement already satisfied: imageio>=2.3.0 in /usr/local/lib/python3.7/dist-packages (from scikit-image->ray[rllib]) (2.4.1)
Collecting distlib<1,>=0.3.1
    Downloading distlib-0.3.4-py2.py3-none-any.whl (461 kB)
    |██████████| 461 kB 62.3 MB/s
Collecting platformdirs<3,>=2
    Downloading platformdirs-2.5.2-py3-none-any.whl (14 kB)
Installing collected packages: platformdirs, frozenlist, distlib, virtualenv, grpcio, aiosignal, tf-estimator-nightly, tensorboardX, ray, lz4
Attempting uninstall: grpcio
  Found existing installation: grpcio 1.44.0
  Uninstalling grpcio-1.44.0:
    Successfully uninstalled grpcio-1.44.0
Successfully installed aiosignal-1.2.0 distlib-0.3.4 frozenlist-1.3.0 grpcio-1.43.0 lz4-4.0.0 platformdirs-2.5.2 ray-1.12.0 tensorboardX-2.5 tf-estimator-nightly-2.8.0.dev2021122109 virtualenv-20.14.1
Requirement already satisfied: gym[atari] in /usr/local/lib/python3.7/dist-packages (0.17.3)
Requirement already satisfied: atari_py in /usr/local/lib/python3.7/dist-packages (0.2.9)
Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from atari_py) (1.15.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.7/dist-packages (from atari_py) (1.21.6)
WARNING: gym 0.17.3 does not provide the extra 'accept-rom-license'
Requirement already satisfied: pyglet<=1.5.0,>=1.4.0 in /usr/local/lib/python3.7/dist-packages (from gym[atari]) (1.5.0)
Requirement already satisfied: cloudpickle<1.7.0,>=1.2.0 in /usr/local/lib/python3.7/dist-packages (from gym[atari]) (1.3.0)
Requirement already satisfied: scipy in /usr/local/lib/python3.7/dist-packages (from gym[atari]) (1.4.1)
Requirement already satisfied: future in /usr/local/lib/python3.7/dist-packages (from pyglet<=1.5.0,>=1.4.0->gym[atari]) (0.16.0)
Requirement already satisfied: Pillow in /usr/local/lib/python3.7/dist-packages (from gym[atari]) (7.1.2)
Requirement already satisfied: opencv-python in /usr/local/lib/python3.7/dist-packages (from gym[atari]) (4.1.2.30)
Requirement already satisfied: tensorboard in /usr/local/lib/python3.7/dist-packages
```

(2.8.0)

Requirement already satisfied: numpy>=1.12.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.21.6)
Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.8.1)
Requirement already satisfied: grpcio>=1.24.3 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.43.0)
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (2.23.0)
Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (0.4.6)
Requirement already satisfied: protobuf>=3.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (3.17.3)
Requirement already satisfied: wheel>=0.26 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (0.37.1)
Requirement already satisfied: google-auth<3,>=1.6.3 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.35.0)
Requirement already satisfied: setuptools>=41.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (57.4.0)
Requirement already satisfied: werkzeug>=0.11.15 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.0.1)
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (3.3.6)
Requirement already satisfied: absl-py>=0.4 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (1.0.0)
Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard) (0.6.1)
Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from absl-py>=0.4->tensorboard) (1.15.0)
Requirement already satisfied: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard) (4.2.4)
Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard) (0.2.8)
Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.7/dist-packages (from google-auth<3,>=1.6.3->tensorboard) (4.8)
Requirement already satisfied: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard) (1.3.1)
Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/dist-packages (from markdown>=2.6.8->tensorboard) (4.11.3)
Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard) (3.8.0)
Requirement already satisfied: typing-extensions>=3.6.4 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard) (4.1.1)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard) (0.4.8)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard) (2021.10.8)
Requirement already satisfied: urllib3!=1.25.0,!>=1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard) (1.24.3)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard) (2.10)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard) (3.0.4)
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard) (3.2.0)

Collecting box2d-py

 Downloading box2d_py-2.3.8-cp37-cp37m-manylinux1_x86_64.whl (448 kB)

 |██████████| 448 kB 5.2 MB/s

Installing collected packages: box2d-py

Successfully installed box2d-py-2.3.8

Requirement already satisfied: gym[Box_2D] in /usr/local/lib/python3.7/dist-packages (0.17.3)

WARNING: gym 0.17.3 does not provide the extra 'box_2d'

Requirement already satisfied: numpy>=1.10.4 in /usr/local/lib/python3.7/dist-packages (from gym[Box_2D]) (1.21.6)
Requirement already satisfied:云d pickle<1.7.0,>=1.2.0 in /usr/local/lib/python3.7/dist-packages (from gym[Box_2D]) (1.3.0)
Requirement already satisfied: pyglet<=1.5.0,>=1.4.0 in /usr/local/lib/python3.7/dist-packages (from gym[Box_2D]) (1.5.0)
Requirement already satisfied: scipy in /usr/local/lib/python3.7/dist-packages (from gym[Box_2D]) (1.4.1)
Requirement already satisfied: future in /usr/local/lib/python3.7/dist-packages (from pyglet<=1.5.0,>=1.4.0->gym[Box_2D]) (0.16.0)
copying keystone_kapers.bin from ROMS/Keystone Kapers - Raueber und Gendarm (1983) (Activision, Garry Kitchen - Ariola) (EAX-025, EAX-025-04I - 711 025-725) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/keystone_kapers.bin
copying qb1ert.bin from ROMS/Q-bert (1983) (Parker Brothers - Western Technologies, Dave Hampton, Tom Sloper) (PB5360) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/qbert.bin
copying atlantis.bin from ROMS/Atlantis (Lost City of Atlantis) (1982) (Imagic, Dennis Koble) (720103-1A, 720103-1B, IA3203, IX-010-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/atlantis.bin
copying robotank.bin from ROMS/Robot Tank (Robotank) (1983) (Activision, Alan Miller) (AZ-028, AG-028-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/robotank.bin
copying king_kong.bin from ROMS/King Kong (1982) (Tigervision - Software Electronics Corporation, Karl T. Olinger - Teldec) (7-001 - 3.60001 VE) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/king_kong.bin
copying assault.bin from ROMS/Assault (AKA Sky Alien) (1983) (Bomb - Onbase) (CA281).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/assault.bin
copying galaxian.bin from ROMS/Galaxian (1983) (Atari - GCC, Mark Ackerman, Tom Calderwood, Glenn Parker) (CX2684) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/galaxian.bin
copying beam_rider.bin from ROMS/Beamrider (1984) (Activision - Cheshire Engineering, David Rolfe, Larry Zwick) (AZ-037-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/beam_rider.bin
copying space_invaders.bin from ROMS/Space Invaders (1980) (Atari, Richard Maurer - Sears) (CX2632 - 49-75153) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/space_invaders.bin
copying kaboom.bin from ROMS/Kaboom! (Paddle) (1981) (Activision, Larry Kaplan, David Crane) (AG-010, CAG-010, AG-010-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/kaboom.bin
copying crazy_climber.bin from ROMS/Crazy Climber (1983) (Atari - Roklan, Joe Gaucher, Alex Leavens) (CX2683) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/crazy_climber.bin
copying surround.bin from ROMS/Surround - Chase (Blockade) (1977) (Atari, Alan Miller - Sears) (CX2641 - 99807, 49-75105) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/surround.bin
copying kung_fu_master.bin from ROMS/Kung-Fu Master (1987) (Activision - Imagineering, Dan Kitchen, Garry Kitchen) (AG-039-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/kung_fu_master.bin
copying journey_escape.bin from ROMS/Journey Escape (1983) (Data Age, J. Ray Dettling) (112-006) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/journey_escape.bin
copying hero.bin from ROMS/H.E.R.O. (1984) (Activision, John Van Ryzin) (AZ-036-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/hero.bin
copying double_dunk.bin from ROMS/Double Dunk (Super Basketball) (1989) (Atari, Matthew L. Hubbard) (CX26159) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/double_dunk.bin
copying time_pilot.bin from ROMS/Time Pilot (1983) (Coleco - Woodside Design Associates, Harley H. Puthuff Jr.) (2663) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/time_pilot.bin
copying krull.bin from ROMS/Krull (1983) (Atari, Jerome Domurat, Dave Staugas) (CX2682) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/krull.bin
copying chopper_command.bin from ROMS/Chopper Command (1982) (Activision, Bob Whitehead) (AX-015, AX-015-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/chopper_command.bin

```
copying phoenix.bin from ROMS/Phoenix (1983) (Atari - GCC, Mike Feinstein, John Mracek) (CX2673) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/phoenix.bin
copying laser_gates.bin from ROMS/Laser Gates (AKA Innerspace) (1983) (Imagic, Dan Oliver) (720118-2A, 13208, EIX-007-04I) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/laser_gates.bin
copying video_pinball.bin from ROMS/Pinball (AKA Video Pinball) (Zellers).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/video_pinball.bin
copying sir_lancelot.bin from ROMS/Sir Lancelot (1983) (Xonox - K-Tel Software - Product Guild, Anthony R. Henderson) (99006, 6220) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/sir_lancelot.bin
copying defender.bin from ROMS/Defender (1982) (Atari, Robert C. Polaro, Alan J. Murphy - Sears) (CX2609 - 49-75186) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/defender.bin
copying fishing_derby.bin from ROMS/Fishing Derby (1980) (Activision, David Crane) (AG-004) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/fishing_derby.bin
copying air_raid.bin from ROMS/Air Raid (Men-A-Vision) (PAL) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/air_raid.bin
copying asteroids.bin from ROMS/Asteroids (1981) (Atari, Brad Stewart - Sears) (CX2649 - 49-75163) [no copyright] ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/asteroids.bin
copying riverraid.bin from ROMS/River Raid (1982) (Activision, Carol Shaw) (AX-020, AX-020-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/riverraid.bin
copying ms_pacman.bin from ROMS/Ms. Pac-Man (1983) (Atari - GCC, Mark Ackerman, Glenn Parker) (CX2675) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/ms_pacman.bin
copying gravitar.bin from ROMS/Gravitar (1983) (Atari, Dan Hitchens, Mimi Nyden) (CX2685) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/gravitar.bin
copying yars_revenge.bin from ROMS/Yars' Revenge (Time Freeze) (1982) (Atari, Howard Scott Warshaw - Sears) (CX2655 - 49-75167) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/yars_revenge.bin
copying centipede.bin from ROMS/Centipede (1983) (Atari - GCC) (CX2676) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/centipede.bin
copying demon_attack.bin from ROMS/Demon Attack (Death from Above) (1982) (Imagic, Rob Fulop) (720000-200, 720101-1B, 720101-1C, IA3200, IA3200C, IX-006-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/demon_attack.bin
copying star_gunner.bin from ROMS/Stargunner (1983) (Telesys, Alex Leavens) (1005) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/star_gunner.bin
copying seaquest.bin from ROMS/Seaquest (1983) (Activision, Steve Cartwright) (AX-022) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/seaquest.bin
copying bowling.bin from ROMS/Bowling (1979) (Atari, Larry Kaplan - Sears) (CX2628 - 6-99842, 49-75117) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/bowling.bin
copying enduro.bin from ROMS/Enduro (1983) (Activision, Larry Miller) (AX-026, AX-026-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/enduro.bin
copying name_this_game.bin from ROMS/Name This Game (Guardians of Treasure, Octopussy) (1983) (U.S. Games Corporation - JWDA, Roger Booth, Sylvia Day, Ron Dubren, Todd Marshall, Robin McDaniel, Wes Trager, Henry Will IV) (VC1007) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/name_this_game.bin
copying pacman.bin from ROMS/Pac-Man (1982) (Atari, Tod Frye) (CX2646) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/pacman.bin
copying berzerk.bin from ROMS/Berzerk (1982) (Atari, Dan Hitchens - Sears) (CX2650 - 49-75168) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/berzerk.bin
copying donkey_kong.bin from ROMS/Donkey Kong (1982) (Coleco - Woodside Design Associates - Imaginative Systems Software, Garry Kitchen) (2451) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/donkey_kong.bin
copying private_eye.bin from ROMS/Private Eye (1984) (Activision, Bob Whitehead) (AG-034-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/private_eye.bin
copying ice_hockey.bin from ROMS/Ice Hockey - Le Hockey Sur Glace (1981) (Activision
```

n, Alan Miller) (AX-012, CAX-012, AX-012-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/ice_hockey.bin
copying freeway.bin from ROMS/Freeway (1981) (Activision, David Crane) (AG-009, AG-09-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/freeway.bin
copying gopher.bin from ROMS/Gopher (Gopher Attack) (1982) (U.S. Games Corporation - JWDA, Sylvia Day, Todd Marshall, Robin McDaniel, Henry Will IV) (VC2001) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/gopher.bin
copying breakout.bin from ROMS/Breakout - Breakaway IV (Paddle) (1978) (Atari, Brad Stewart - Sears) (CX2622 - 6-99813, 49-75107) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/breakout.bin
copying jamesbond.bin from ROMS/James Bond 007 (James Bond Agent 007) (1984) (Parker Brothers - On-Time Software, Joe Gaucher, Dan Kurczewski, Louis Marbel, Kathy Von (PB5110) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/jamesbond.bin
copying pong.bin from ROMS/Video Olympics - Pong Sports (Paddle) (1977) (Atari, Joe Decuir - Sears) (CX2621 - 99806, 6-99806, 49-75104) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/pong.bin
copying wizard_of_wor.bin from ROMS/Wizard of Wor (1982) (CBS Electronics - Roklan, Joe Hellesen, Joe Wagner) (M8774, M8794) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/wizard_of_wor.bin
copying amidar.bin from ROMS/Amidar (1982) (Parker Brothers, Ed Temple) (PB5310) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/amidar.bin
copying adventure.bin from ROMS/Adventure (1980) (Atari, Warren Robinett) (CX2613, CX2613P) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/adventure.bin
copying elevator_action.bin from ROMS/Elevator Action (1983) (Atari, Dan Hitchens) (CX26126) (Prototype) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/elevator_action.bin
copying skiing.bin from ROMS/Skiing - Le Ski (1980) (Activision, Bob Whitehead) (AG-005, CAG-005, AG-005-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/skiing.bin
copying solaris.bin from ROMS/Solaris (The Last Starfighter, Star Raiders II, Universe) (1986) (Atari, Douglas Neubauer, Mimi Nyden) (CX26136) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/solaris.bin
copying venture.bin from ROMS/Venture (1982) (Coleco, Joseph Biel) (2457) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/venture.bin
copying boxing.bin from ROMS/Boxing - La Boxe (1980) (Activision, Bob Whitehead) (AG-002, CAG-002, AG-002-04) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/boxing.bin
copying koolaid.bin from ROMS/Kool-Aid Man (Kool Aid Pitcher Man) (1983) (M Network, Stephen Tatsumi, Jane Terjung - Kool Aid) (MT4648) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/koolaid.bin
copying carnival.bin from ROMS/Carnival (1982) (Coleco - Woodside Design Associates, Steve 'Jessica Stevens' Kitchen) (2468) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/carnival.bin
copying bank_heist.bin from ROMS/Bank Heist (Bonnie & Clyde, Cops 'n' Robbers, Hold-Up, Roaring 20's) (1983) (20th Century Fox Video Games, Bill Aspromonte) (11012) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/bank_heist.bin
copying tutankham.bin from ROMS/Tutankham (1983) (Parker Brothers, Dave Engman, Dawn Stockbridge) (PB5340) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/tutankham.bin
copying pooyan.bin from ROMS/Pooyan (1983) (Konami) (RC 100-X 02) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/pooyan.bin
copying tennis.bin from ROMS/Tennis - Le Tennis (1981) (Activision, Alan Miller) (AG-007, CAG-007) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/tennis.bin
copying trondead.bin from ROMS/TRON - Deadly Discs (TRON Joystick) (1983) (M Network - INTV - APh Technological Consulting, Jeff Ronne, Brett Stutz) (MT5662) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/trondead.bin
copying up_n_down.bin from ROMS/Up 'n Down (1984) (SEGA - Beck-Tech, Steve Beck, Phat Ho) (009-01) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/u_p_n_down.bin
copying mr_do.bin from ROMS/Mr. Do! (1983) (CBS Electronics - Individeo, Ed English)

```
(4L4478) (PAL).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/mr_
do.bin
copying pitfall.bin from ROMS/Pitfall! - Pitfall Harry's Jungle Adventure (Jungle Ru
nner) (1982) (Activision, David Crane) (AX-018, AX-018-04) ~.bin to /usr/local/lib/p
ython3.7/dist-packages/atari_py/atari_roms/pitfall.bin
copying lost_luggage.bin from ROMS/Lost Luggage (Airport Mayhem) (1982) (Apollo - Ga
mes by Apollo, Larry Minor, Ernie Runyon, Ed Salvo) (AP-2004) [no opening scene] ~.b
in to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/lost_luggage.bin
copying asterix.bin from ROMS/Asterix (AKA Taz) (1984) (Atari, Jerome Domurat, Steve
Woita) (CX2696).bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/as
terix.bin
copying frostbite.bin from ROMS/Frostbite (Iceman) (1983) (Activision, Steve Cartwri
ght) (AX-031) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/fr
ostbite.bin
copying zaxxon.bin from ROMS/Zaxxon (1983) (Coleco) (2454) ~.bin to /usr/local/lib/p
thon3.7/dist-packages/atari_py/atari_roms/zaxxon.bin
copying montezuma_revenge.bin from ROMS/Montezuma's Revenge - Featuring Panama Joe
(1984) (Parker Brothers - JWDA, Henry Will IV) (PB5760) ~.bin to /usr/local/lib/pyt
hon3.7/dist-packages/atari_py/atari_roms/montezuma_revenge.bin
copying alien.bin from ROMS/Alien (1982) (20th Century Fox Video Games, Douglas 'Dal
las North' Neubauer) (11006) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_p
y/atari_roms/alien.bin
copying frogger.bin from ROMS/Frogger (1982) (Parker Brothers, Ed English, David Lam
kins) (PB5300) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/f
rogger.bin
copying battle_zone.bin from ROMS/Battlezone (1983) (Atari - GCC, Mike Feinstein, Br
ad Rice) (CX2681) ~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_rom
s/battle_zone.bin
copying kangaroo.bin from ROMS/Kangaroo (1983) (Atari - GCC, Kevin Osborn) (CX2689)
~.bin to /usr/local/lib/python3.7/dist-packages/atari_py/atari_roms/kangaroo.bin
copying road_runner.bin from patched version of ROMS/Road Runner (1989) (Atari - Bob
co, Robert C. Polaro) (CX2663) ~.bin to /usr/local/lib/python3.7/dist-packages/atari
_py/atari_roms/road_runner.bin
```

Required Imports

In []:

```
import torch as T
import torch.nn as nn
import torch.nn.functional as F
import torch.optim as optim
import numpy as np
```

In []:

```
import gym
import random
import torch
import torch.nn as nn
import torch.nn.functional as F
import torch.optim as optim
import matplotlib.pyplot as plt
import base64, io
import numpy as np
from collections import deque, namedtuple
# For visualization
from gym.wrappers.monitoring import video_recorder
from IPython.display import HTML
from IPython import display
import glob
import pandas as pd
import numpy as np
from IPython import display
```

```

from gym.wrappers.monitoring.video_recorder import VideoRecorder
from pyvirtualdisplay import Display
from IPython.display import HTML

%matplotlib inline
from pyvirtualdisplay import Display
display = Display(visible=False, size=(1400, 900))
_ = display.start()

```

Lunar Lander

We intend to use reinforcement learning methods to solve the lunar lander environment in the OpenAI gym kit. The environment simulates a situation in which a lander must land in a specific location under low-gravity conditions, and it includes a well-defined physics engine. The main goal of the game is to guide the agent as softly and efficiently as possible to the landing pad.

```
In [ ]:
env = gym.make('LunarLander-v2')
env.seed(0)
print(env.observation_space)
```

Box(-inf, inf, (8,), float32)

```
In [ ]:
env.reset()
for i in range(100):
    env.render()
    observation, reward, done, info = env.step(env.action_space.sample()) # take a random action
    print("step", i, reward, done, info)
env.close()
```

```

step 0 -1.8939137747137977 False {}
step 1 -0.255552362366177 False {}
step 2 1.4130303923712415 False {}
step 3 1.0988330218752094 False {}
step 4 1.2955965680678787 False {}
step 5 -0.5419368974280292 False {}
step 6 -1.8100930900818912 False {}
step 7 -2.855592615211235 False {}
step 8 -1.183126793945944 False {}
step 9 -2.7065879345734913 False {}
step 10 -2.935527454516489 False {}
step 11 -3.9111227761963208 False {}
step 12 -3.8478887500884285 False {}
step 13 -4.248081721969441 False {}
step 14 -3.561238674306935 False {}
step 15 -2.77671727999376 False {}
step 16 0.9188311873494512 False {}
step 17 -4.288429255084593 False {}
step 18 0.6074073207931121 False {}
step 19 -1.7034582708702601 False {}
step 20 0.4141546985683931 False {}
step 21 -2.6225312447957365 False {}
step 22 -4.329604058650658 False {}
step 23 -2.6805697366389425 False {}
step 24 -1.7779733220874505 False {}
step 25 -2.3068752137306476 False {}
step 26 0.4433184710637022 False {}
step 27 -1.4999140192187952 False {}
step 28 -2.915012154883698 False {}

```

```
step 29 -3.924807110860654 False {}
step 30 -3.132303172121169 False {}
step 31 -3.983418446120196 False {}
step 32 -1.8682866323395217 False {}
step 33 -2.5140095802400695 False {}
step 34 -4.0068261711213315 False {}
step 35 -1.258840479724472 False {}
step 36 -2.3926151993659333 False {}
step 37 -3.078043244612587 False {}
step 38 -2.468010971651597 False {}
step 39 -1.888064220897802 False {}
step 40 -1.697021386234552 False {}
step 41 -1.7136490533250697 False {}
step 42 -3.2907744236236156 False {}
step 43 -2.4426134425008854 False {}
step 44 -1.7737370598420228 False {}
step 45 -3.376214171773198 False {}
step 46 -3.249124308881163 False {}
step 47 -3.576617262839646 False {}
step 48 -3.6416895245764622 False {}
step 49 -3.7088172595105093 False {}
step 50 -3.0602377499917566 False {}
step 51 -2.010937355721778 False {}
step 52 -1.922635968807781 False {}
step 53 -3.5553424064335375 False {}
step 54 -1.5941096835575468 False {}
step 55 -2.375498993705378 False {}
step 56 -1.693796450230393 False {}
step 57 -3.2628359386777945 False {}
step 58 -2.7079251945686336 False {}
step 59 -1.6021338603913364 False {}
step 60 -1.4559040536263115 False {}
step 61 -1.979034341627596 False {}
step 62 -0.9498941632819811 False {}
step 63 -1.6494469264405325 False {}
step 64 -0.9214496008850392 False {}
step 65 -2.193235082790038 False {}
step 66 -1.5292785580134591 False {}
step 67 -0.6761477466983752 False {}
step 68 -1.2382952748025673 False {}
step 69 -1.558261494506428 False {}
step 70 -1.2958205609441393 False {}
step 71 -0.3320968819245127 False {}
step 72 -0.29314016805374193 False {}
step 73 -1.8067996524285082 False {}
step 74 -1.153417852741029 False {}
step 75 -1.9678255680349526 False {}
step 76 -2.906082224715635 False {}
step 77 -3.2769336977020087 False {}
step 78 -0.19085585264988822 False {}
step 79 -0.9820635192156146 False {}
step 80 -1.80799111100461 False {}
step 81 -2.306542959436483 False {}
step 82 -1.5818326514244063 False {}
step 83 -2.8602855037132415 False {}
step 84 -2.1081935052998233 False {}
step 85 -1.549184011123798 False {}
step 86 -1.3154562959418559 False {}
step 87 -5.389376963774384 False {}
step 88 -5.746392253670524 False {}
step 89 -2.1695029596362745 False {}
step 90 7.385817622046006 False {}
step 91 17.9288272401708 False {}
step 92 -100 True {}
```

```
step 93 -100 True {}
step 94 -100 True {}
step 95 -100 True {}
step 96 -100 True {}
step 97 -100 True {}
step 98 -100 True {}
step 99 -100 True {}
```

```
In [ ]: env.seed(0)
print('State shape: ', env.observation_space.shape)
print('Number of actions: ', env.action_space.n)
```

```
State shape: (8,)
Number of actions: 4
```

DQN

DQN Implementation

To estimate the Q values, the deep Q-Learning approach uses a fully connected neural network known as a Deep Q-Network (DQN). The current state (8-dimensional in our case) is fed into the network, and the outputs are the Q values for all state-action pairs for that state.

```
In [ ]: class QNetwork(nn.Module):
    """Actor (Policy) Model.

    def __init__(self, state_size, action_size, seed):
        """
        Parameters :
            state_size : DataType int
            action_size : DataType int
            seed : DataType int
        Operation:
            initializing 3 fully connected networks
        """
        super(QNetwork, self).__init__()
        self.seed = torch.manual_seed(seed)
        self.fc1 = nn.Linear(state_size, 64)
        self.fc2 = nn.Linear(64, 128)
        self.fc3 = nn.Linear(128, action_size)

    def forward(self, state):
        """
        Param :
            state : current state
            DataType : Tensor object
        Operation :
            Network that maps state to action values
        """
        x = self.fc1(state)
        x = F.relu(x)
        x = self.fc2(x)
        x = F.relu(x)
        return self.fc3(x)
```

```
In [ ]: BUFFER_SIZE = int(1e5) # replay buffer size
BATCH_SIZE = 64           # batch size
GAMMA = 0.99              # discount factor
```

```

TAU = 1e-3           # for soft update of target parameters
LR = 5e-4            # learning rate
UPDATE_EVERY = 4

device = torch.device("cuda:0" if torch.cuda.is_available() else "cpu")

```

In []:

```

class DQNAgent():
    """
        Operation : Agent learns from the environment using a DQN approach
    """

    def __init__(self, state_size, action_size, seed):
        """Initialize an Agent object.

        Params:
            state_size (int): dimension of each state
            action_size (int): dimension of each action
            seed (int): random seed
        """
        self.state_size = state_size
        self.action_size = action_size
        self.seed = random.seed(seed)

        # Q-Network
        self.qnetwork_local = QNetwork(state_size, action_size, seed).to(device)
        self.qnetwork_target = QNetwork(state_size, action_size, seed).to(device)
        self.optimizer = optim.Adam(self.qnetwork_local.parameters(), lr=LR)

        # Replay memory
        self.memory = ReplayBuffer(action_size, BUFFER_SIZE, BATCH_SIZE, seed)
        # Initialize time step (for updating every UPDATE_EVERY steps)
        self.t_step = 0

    def step(self, state, action, reward, next_state, done):
        """
            Saves the step in memory and learn every time step
            Params:
                state
                action, reward, next_state, done
        """
        # Save experience in replay memory
        self.memory.add(state, action, reward, next_state, done)

        # Learn every UPDATE_EVERY time steps.
        self.t_step = (self.t_step + 1) % UPDATE_EVERY
        if self.t_step == 0:
            # If enough samples are available in memory, get random subset and Learn
            if len(self.memory) > BATCH_SIZE:
                experiences = self.memory.sample()
                self.learn(experiences, GAMMA)

    def act(self, state, eps=0.):
        """Returns actions for given state as per current policy.

        Params
        ======
            state (array_like): current state
            eps (float): epsilon, for epsilon-greedy action selection
        """
        state = torch.from_numpy(state).float().unsqueeze(0).to(device)
        self.qnetwork_local.eval()
        with torch.no_grad():
            action_values = self.qnetwork_local(state)
        self.qnetwork_local.train()


```

```

# Epsilon-greedy action selection
if random.random() > eps:
    return np.argmax(action_values.cpu().data.numpy())
else:
    return random.choice(np.arange(self.action_size))

def learn(self, experiences, gamma):
    """Update value parameters using given batch of experience tuples.

    Params
    ======
        experiences (Tuple[torch.Variable]): tuple of (s, a, r, s', done) tuples
        gamma (float): discount factor
    """
    # Obtain random minibatch of tuples from D
    states, actions, rewards, next_states, dones = experiences

    ## Compute and minimize the loss
    ### Extract next maximum estimated value from target network
    q_targets_next = self.qnetwork_target(next_states).detach().max(1)[0].unsqueeze(1)
    ### Calculate target value from bellman equation
    q_targets = rewards + gamma * q_targets_next * (1 - dones)
    ### Calculate expected value from local network
    q_expected = self.qnetwork_local(states).gather(1, actions)

    ### Loss calculation (we used Mean squared error)
    loss = F.mse_loss(q_expected, q_targets)
    self.optimizer.zero_grad()
    loss.backward()
    self.optimizer.step()

    # ----- update target network ----- #
    self.soft_update(self.qnetwork_local, self.qnetwork_target, TAU)

def soft_update(self, local_model, target_model, tau):
    """Soft update model parameters.
    θ_target = τ*θ_local + (1 - τ)*θ_target

    Params
    ======
        local_model (PyTorch model): weights will be copied from
        target_model (PyTorch model): weights will be copied to
        tau (float): interpolation parameter
    """
    for target_param, local_param in zip(target_model.parameters(), local_model.parameters()):
        target_param.data.copy_(tau*local_param.data + (1.0-tau)*target_param.data)

```

In []:

```

class ReplayBuffer:
    """Fixed-size buffer to store experience tuples."""

    def __init__(self, action_size, buffer_size, batch_size, seed):
        """Initialize a ReplayBuffer object.

        Params
        ======
            action_size (int): dimension of each action
            buffer_size (int): maximum size of buffer
            batch_size (int): size of each training batch
            seed (int): random seed
        """
        self.action_size = action_size
        self.memory = deque(maxlen=buffer_size)

```

```

    self.batch_size = batch_size
    self.experience = namedtuple("Experience", field_names=["state", "action", "reward", "next_state", "done"])
    self.seed = random.seed(seed)

    def add(self, state, action, reward, next_state, done):
        """Add a new experience to memory."""
        e = self.experience(state, action, reward, next_state, done)
        self.memory.append(e)

    def sample(self):
        """Randomly sample a batch of experiences from memory."""
        experiences = random.sample(self.memory, k=self.batch_size)

        states = torch.from_numpy(np.vstack([e.state for e in experiences if e.is_normal]))
        actions = torch.from_numpy(np.vstack([e.action for e in experiences if e.is_normal]))
        rewards = torch.from_numpy(np.vstack([e.reward for e in experiences if e.is_normal]))
        next_states = torch.from_numpy(np.vstack([e.next_state for e in experiences if e.is_normal]))
        dones = torch.from_numpy(np.vstack([e.done for e in experiences if e.is_normal]))

        return (states, actions, rewards, next_states, dones)

    def __len__(self):
        """Return the current size of internal memory."""
        return len(self.memory)

```

In []:

```

def DQNTTrainer(n_episodes=2000, max_t=1000, eps_start=1.0, eps_end=0.01, eps_decay=0.001):
    """Deep Q-Learning.

    Params
    ======
        n_episodes (int): maximum number of training episodes
        max_t (int): maximum number of timesteps per episode
        eps_start (float): starting value of epsilon, for epsilon-greedy action selection
        eps_end (float): minimum value of epsilon
        eps_decay (float): multiplicative factor (per episode) for decreasing epsilon
    """

    scores = []                      # list containing scores from each episode
    scores_window = deque(maxlen=100)   # Last 100 scores
    eps = eps_start                   # initialize epsilon
    for i_episode in range(1, n_episodes+1):
        state = env.reset()
        score = 0
        for t in range(max_t):
            action = agent.act(state, eps)
            next_state, reward, done, _ = env.step(action)
            agent.step(state, action, reward, next_state, done)
            state = next_state
            score += reward
            if done:
                break
        scores.append(score)           # save most recent score
        scores_window.append(score)    # save most recent score
        eps = max(eps_end, eps_decay*eps) # decrease epsilon
        print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
        if i_episode % 100 == 0:
            print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
            if np.mean(scores_window)>=200.0:
                print('\nEnvironment solved in {:d} episodes!\tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
                torch.save(agent.qnetwork_local.state_dict(), 'checkpoint.pth')
                break
    return scores

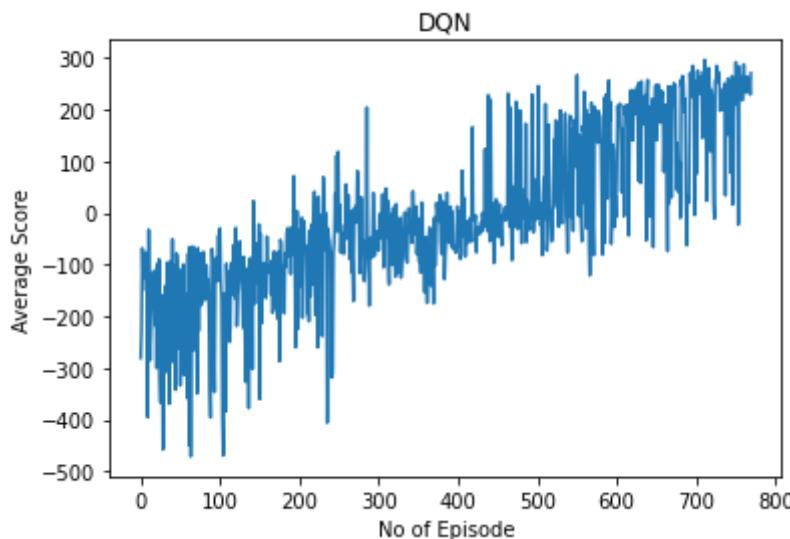
```

```
agent = DQNAgent(state_size=8, action_size=4, seed=0)
scores_dqn = DQNTrainer()
```

```
Episode 100      Average Score: -182.63
Episode 200      Average Score: -131.66
Episode 300      Average Score: -61.97
Episode 400      Average Score: -49.02
Episode 500      Average Score: 6.97
Episode 600      Average Score: 76.39
Episode 700      Average Score: 159.14
Episode 770      Average Score: 200.70
Environment solved in 670 episodes!      Average Score: 200.70
```

In []:

```
#updated graph
fig = plt.figure()
ax = fig.add_subplot(111)
plt.plot(np.arange(len(scores_dqn)), scores_dqn)
plt.ylabel('Average Score')
plt.xlabel('No of Episode')
plt.title('DQN')
plt.show()
```



DQN Code Reference :

https://goodboychan.github.io/python/reinforcement_learning/pytorch/udacity/2021/05/07/DQN-LunarLander.html

Double Deep Q-Network -DDQN Implementation

The number of hidden layers is doubled

Double DQN is implemented by using two q. networks, one for action and one for target q network

Observation : Hidden layers doubled improved the performance of the agent

In []:

```
class QNetwork(nn.Module):
    """Actor (Policy) Model.

    def __init__(self, state_size, action_size, seed):
        """
        Parameters :
            state_size : DataType int
```

```

action_size : DataType int
seed : DataType int
Operation:
    initializing 3 fully connected networks
"""
super(QNetwork, self).__init__()
self.seed = torch.manual_seed(seed)
self.fc1 = nn.Linear(state_size, 64*2)
self.fc2 = nn.Linear(64*2, 128*2)
self.fc3 = nn.Linear(128*2, action_size)

def forward(self, state):
"""
Param :
    state : current state
    DataType : Tensor object
Operation :
    Network that maps state to action values
"""
x = self.fc1(state)
x = F.relu(x)
x = self.fc2(x)
x = F.relu(x)
return self.fc3(x)

```

```

In [ ]: BUFFER_SIZE = int(1e5) # replay buffer size
BATCH_SIZE = 64 # batch size
GAMMA = 0.99 # discount factor
TAU = 1e-3 # for soft update of target parameters
LR = 5e-4 # learning rate
UPDATE_EVERY = 4

device = torch.device("cuda:0" if torch.cuda.is_available() else "cpu")

```

```

In [ ]: class DoubleDQNAgent():
"""
Operation : Agent learns from the environment using a DQN approach
"""

def __init__(self, state_size, action_size, seed):
    """Initialize an Agent object.

    Params
    ======
        state_size (int): dimension of each state
        action_size (int): dimension of each action
        seed (int): random seed
"""
    self.state_size = state_size
    self.action_size = action_size
    self.seed = random.seed(seed)

    # Q-Network
    self.qnetwork_local = QNetwork(state_size, action_size, seed).to(device)
    self.qnetwork_target = QNetwork(state_size, action_size, seed).to(device)
    self.optimizer = optim.Adam(self.qnetwork_local.parameters(), lr=LR)

    # Replay memory
    self.memory = ReplayBuffer(action_size, BUFFER_SIZE, BATCH_SIZE, seed)
    # Initialize time step (for updating every UPDATE_EVERY steps)
    self.t_step = 0

```

```

def step(self, state, action, reward, next_state, done):
    # Save experience in replay memory
    self.memory.add(state, action, reward, next_state, done)

    # Learn every UPDATE_EVERY time steps.
    self.t_step = (self.t_step + 1) % UPDATE_EVERY
    if self.t_step == 0:
        # If enough samples are available in memory, get random subset and Learn
        if len(self.memory) > BATCH_SIZE:
            experiences = self.memory.sample()
            self.learn(experiences, GAMMA)

def act(self, state, eps=0.):
    """Returns actions for given state as per current policy.

    Params
    ======
        state (array_like): current state
        eps (float): epsilon, for epsilon-greedy action selection
    """
    state = torch.from_numpy(state).float().unsqueeze(0).to(device)
    self.qnetwork_local.eval()
    with torch.no_grad():
        action_values = self.qnetwork_local(state)
    self.qnetwork_local.train()

    # Epsilon-greedy action selection
    if random.random() > eps:
        return np.argmax(action_values.cpu().data.numpy())
    else:
        return random.choice(np.arange(self.action_size))

def learn(self, experiences, gamma):
    """Update value parameters using given batch of experience tuples.

    Params
    ======
        experiences (Tuple[torch.Variable]): tuple of (s, a, r, s', done) tuples
        gamma (float): discount factor
    """
    # Obtain random minibatch of tuples from D
    states, actions, rewards, next_states, dones = experiences

    ## Compute and minimize the loss
    ### Extract next maximum estimated value from target network
    q_expected = self.qnetwork_local(states).gather(-1, actions)
    with torch.no_grad():
        next_actions = self.qnetwork_local(next_states).argmax(-1, keepdim=True)
        q_targets_next = self.qnetwork_target(next_states).gather(-1, next_actions)
        q_targets = rewards+GAMMA*q_targets_next*(1-dones)

    ### Loss calculation (we used Mean squared error)
    loss = F.mse_loss(q_expected, q_targets)
    self.optimizer.zero_grad()
    loss.backward()
    self.optimizer.step()

    # ----- update target network ----- #
    self.soft_update(self.qnetwork_local, self.qnetwork_target, TAU)

return q_expected - q_targets

```

```

def soft_update(self, local_model, target_model, tau):
    """Soft update model parameters.
    θ_target = τ*θ_local + (1 - τ)*θ_target

    Params
    ======
        local_model (PyTorch model): weights will be copied from
        target_model (PyTorch model): weights will be copied to
        tau (float): interpolation parameter
    """
    for target_param, local_param in zip(target_model.parameters(), local_model.
        target_param.data.copy_(tau*local_param.data + (1.0-tau)*target_param.da

```

In []:

```

def DoubleDQNTrain(n_episodes=2000, max_t=500, eps_start=1.0, eps_end=0.01, eps_deca
    """Double Deep Q-Learning.

    Params:
        n_episodes (int): maximum number of training episodes
        max_t (int): maximum number of timesteps per episode
        eps_start (float): starting value of epsilon, for epsilon-greedy action sele
        eps_end (float): minimum value of epsilon
        eps_decay (float): multiplicative factor (per episode) for decreasing epsilo
    """

    scores = []                      # list containing scores from each episode
    scores_window = deque(maxlen=100)  # last 100 scores
    eps = eps_start                  # initialize epsilon
    for i_episode in range(1, n_episodes+1):
        state = env.reset()
        score = 0
        for t in range(max_t):
            action = agent.act(state, eps)
            next_state, reward, done, _ = env.step(action)
            agent.step(state, action, reward, next_state, done)
            state = next_state
            score += reward
            if done:
                break
        scores.append(score)          # save most recent score
        scores_window.append(score)   # save most recent score
        eps = max(eps_end, eps_decay*eps) # decrease epsilon
        print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores))
        if i_episode % 100 == 0:
            print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(sc
        if np.mean(scores_window)>=200.0:
            print('\nEnvironment solved in {:d} episodes!\tAverage Score: {:.2f}'.fo
            torch.save(agent.qnetwork_local.state_dict(), 'checkpoint.pth')
            break
    return scores

agent = DoubleDQNAgent(state_size=8, action_size=4, seed=0)
scores_doubledqn = DoubleDQNTrain()

```

Episode 100	Average Score: -160.52
Episode 200	Average Score: -99.19
Episode 300	Average Score: -41.89
Episode 400	Average Score: 22.63
Episode 500	Average Score: 41.30
Episode 600	Average Score: 51.29
Episode 700	Average Score: 49.63
Episode 800	Average Score: 55.69
Episode 900	Average Score: 62.59
Episode 1000	Average Score: 68.69
Episode 1100	Average Score: 96.71

```

Episode 1200    Average Score: 131.24
Episode 1300    Average Score: 186.34
Episode 1400    Average Score: 183.17
Episode 1500    Average Score: 192.08
Episode 1600    Average Score: 183.77
Episode 1680    Average Score: 200.38
Environment solved in 1580 episodes!      Average Score: 200.38

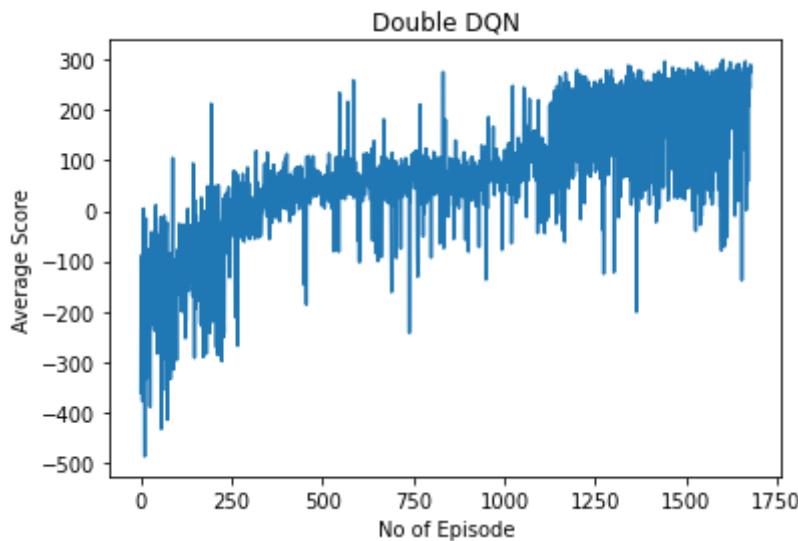
```

In []:

```

fig = plt.figure()
ax = fig.add_subplot(111)
plt.plot(np.arange(len(scores_doubledqn)), scores_doubledqn)
plt.ylabel('Average Score')
plt.xlabel('No of Episode')
plt.title('Double DQN')
plt.show()

```



Dueling DQN Implementation

The architecture is same as DQN but the network is split into two streams, state value and action advantage

In []:

```

class DuelingDQN(nn.Module):

    def __init__(self, state_size, action_size, seed):
        super(DuelingDQN, self).__init__()
        self.input_dim = state_size
        self.output_dim = action_size

        self.feature_layer = nn.Sequential(
            nn.Linear(state_size, 128),
            nn.ReLU(),
            nn.Linear(128, 128),
            nn.ReLU()
        )

        self.value_stream = nn.Sequential(
            nn.Linear(128, 128),
            nn.ReLU(),
            nn.Linear(128, 1)
        )

        self.advantage_stream = nn.Sequential(
            nn.Linear(128, 128),

```

```

        nn.ReLU(),
        nn.Linear(128, action_size)
    )

    def forward(self, state):
        features = self.feature_layer(state)
        values = self.value_stream(features)
        advantages = self.advantage_stream(features)
        qvals = values + (advantages - advantages.mean())

    return qvals

```

DuelingDQN Code Reference : <https://towardsdatascience.com/dueling-deep-q-networks-81ffab672751>

```

In [ ]:
BUFFER_SIZE = int(1e5) # replay buffer size
BATCH_SIZE = 64          # batch size
GAMMA = 0.99            # discount factor
TAU = 1e-3              # for soft update of target parameters
LR = 5e-4                # learning rate
UPDATE_EVERY = 4

device = torch.device("cuda:0" if torch.cuda.is_available() else "cpu")

```

```

In [ ]:
class DuelingDeepQNAgent():

    """
    Operation : Agent learns from the environment using a DQN approach
    """

    def __init__(self, state_size, action_size, seed):
        """Initialize an Agent object.

        Params
        ======
            state_size (int): dimension of each state
            action_size (int): dimension of each action
            seed (int): random seed
        """
        self.state_size = state_size
        self.action_size = action_size
        self.seed = random.seed(seed)
        self.device = torch.device("cuda" if torch.cuda.is_available() else "cpu")

        # Q-Network
        self.qnetwork_local = DuelingDQN(state_size, action_size, seed).to(self.device)
        self.qnetwork_target = DuelingDQN(state_size, action_size, seed).to(self.device)
        self.optimizer = optim.Adam(self.qnetwork_local.parameters(), lr=LR)

        # Replay memory
        self.memory = ReplayBuffer(action_size, BUFFER_SIZE, BATCH_SIZE, seed)
        # Initialize time step (for updating every UPDATE_EVERY steps)
        self.t_step = 0

    def step(self, state, action, reward, next_state, done):
        # Save experience in replay memory
        self.memory.add(state, action, reward, next_state, done)

        # Learn every UPDATE_EVERY time steps.
        self.t_step = (self.t_step + 1) % UPDATE_EVERY
        if self.t_step == 0:

```

```

# If enough samples are available in memory, get random subset and Learn
if len(self.memory) > BATCH_SIZE:
    experiences = self.memory.sample()
    self.learn(experiences, GAMMA)

def act(self, state, eps=0.):
    """Returns actions for given state as per current policy.

Params
=====
state (array_like): current state
eps (float): epsilon, for epsilon-greedy action selection
"""

state = torch.from_numpy(state).float().unsqueeze(0).to(device)
self.qnetwork_local.eval()
with torch.no_grad():
    action_values = self.qnetwork_local(state)
self.qnetwork_local.train()

# Epsilon-greedy action selection
if random.random() > eps:
    return np.argmax(action_values.cpu().data.numpy())
else:
    return random.choice(np.arange(self.action_size))

def learn(self, experiences, gamma):
    """Update value parameters using given batch of experience tuples.

Params
=====
experiences (Tuple[torch.Variable]): tuple of (s, a, r, s', done) tuples
gamma (float): discount factor
"""

# Obtain random minibatch of tuples from D
states, actions, rewards, next_states, dones = experiences

q_expected = self.qnetwork_local(states).gather(1, actions)
# q_expected = q_expected.squeeze(1)
next_actions = self.qnetwork_local(next_states)
q_targets_next = torch.max(next_actions, 1)[0]
q_targets = rewards + GAMMA * q_targets_next

### Loss calculation (we used Mean squared error)
loss = F.mse_loss(q_expected, q_targets)
self.optimizer.zero_grad()
loss.backward()
self.optimizer.step()

# ----- update target network -----
self.soft_update(self.qnetwork_local, self.qnetwork_target, TAU)

# return q_expected - q_targets
# loss = self.MSE_loss(curr_Q, expected_Q)

return loss

def soft_update(self, local_model, target_model, tau):
    """Soft update model parameters.
    θ_target = τ*θ_local + (1 - τ)*θ_target

Params
=====
local_model (PyTorch model): weights will be copied from
"""

```

```

target_model (PyTorch model): weights will be copied to
tau (float): interpolation parameter
"""
for target_param, local_param in zip(target_model.parameters(), local_model.
    target_param.data.copy_(tau*local_param.data + (1.0-tau)*target_param.da

```

```

In [ ]:
def DuelDeepQNTrain(n_episodes=2000, max_t=500, eps_start=1.0, eps_end=0.01, eps_decay=0.995):
    """Deep Q-Learning.

    Params
    ======
        n_episodes (int): maximum number of training episodes
        max_t (int): maximum number of timesteps per episode
        eps_start (float): starting value of epsilon, for epsilon-greedy action selection
        eps_end (float): minimum value of epsilon
        eps_decay (float): multiplicative factor (per episode) for decreasing epsilon
    """

    scores = [] # list containing scores from each episode
    scores_window = deque(maxlen=100) # Last 100 scores
    eps = eps_start # initialize epsilon
    for i_episode in range(1, n_episodes+1):
        state = env.reset()
        score = 0
        for t in range(max_t):
            action = agent.act(state, eps)
            next_state, reward, done, _ = env.step(action)
            agent.step(state, action, reward, next_state, done)
            state = next_state
            score += reward
            if done:
                break
        scores.append(score) # save most recent score
        scores_window.append(score) # save most recent score
        eps = max(eps_end, eps_decay*eps) # decrease epsilon
        print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
        if i_episode % 100 == 0:
            print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
        if np.mean(scores_window)>=200.0:
            print('\nEnvironment solved in {:d} episodes!\tAverage Score: {:.2f}'.format(len(scores_window), np.mean(scores_window)))
            torch.save(agent.qnetwork_local.state_dict(), 'checkpoint.pth')
            break
    return scores

agent = DualingDeepQNAgent(state_size=8, action_size=4, seed=0)
scores_3dqn = DuelDeepQNTrain()

```

```

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:81: UserWarning: Using
a target size (torch.Size([64, 64])) that is different to the input size (torch.Size
([64, 1])). This will likely lead to incorrect results due to broadcasting. Please ensure they have the same size.
Episode 100      Average Score: -148.48
Episode 200      Average Score: -118.93
Episode 300      Average Score: -146.52
Episode 400      Average Score: -83.85
Episode 500      Average Score: -139.11
Episode 600      Average Score: -241.77
Episode 700      Average Score: -283.20
Episode 800      Average Score: -316.99
Episode 900      Average Score: -643.64
Episode 1000     Average Score: -617.76
Episode 1100     Average Score: -316.07
Episode 1200     Average Score: -117.96

```

```

Episode 1300    Average Score: -175.05
Episode 1400    Average Score: -297.62
Episode 1500    Average Score: -255.75
Episode 1600    Average Score: -418.20
Episode 1700    Average Score: -179.97
Episode 1800    Average Score: -329.65
Episode 1900    Average Score: -222.87
Episode 2000    Average Score: -130.41

```

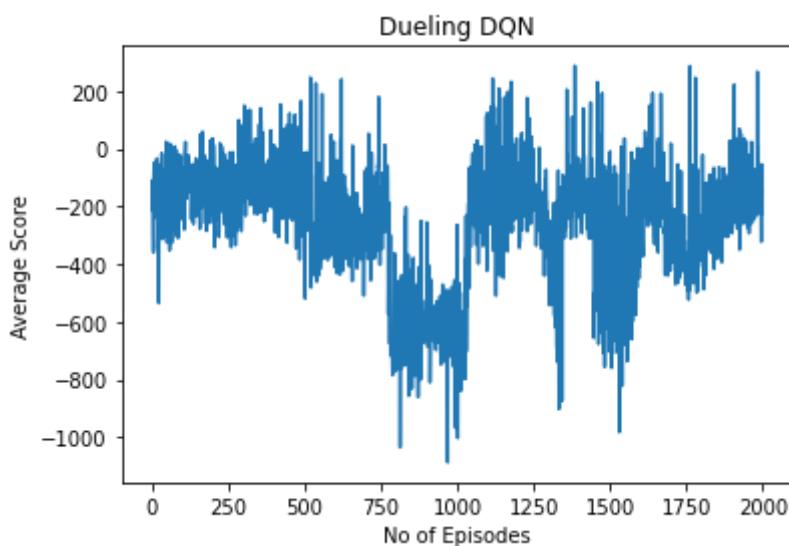
In []:

```

#DuelingDQN
fig = plt.figure()
ax = fig.add_subplot(111)
plt.plot(np.arange(len(scores_3dqn)), scores_3dqn)
plt.title('Dueling DQN')
plt.ylabel('Average Score')
plt.xlabel('No of Episodes')

plt.show()

```



In []:

```

from numpy.core.fromnumeric import size
plt.figure(figsize=(12,8))

dlist = ['DQN', 'DDQN', 'DuelDQN']
# df=pd.DataFrame({'DQN':scores_dqn, 'DDQN':scores_ddqn, 'DuelDQN':scores_3dqn})
plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_dqn, 'r', label='DQN')

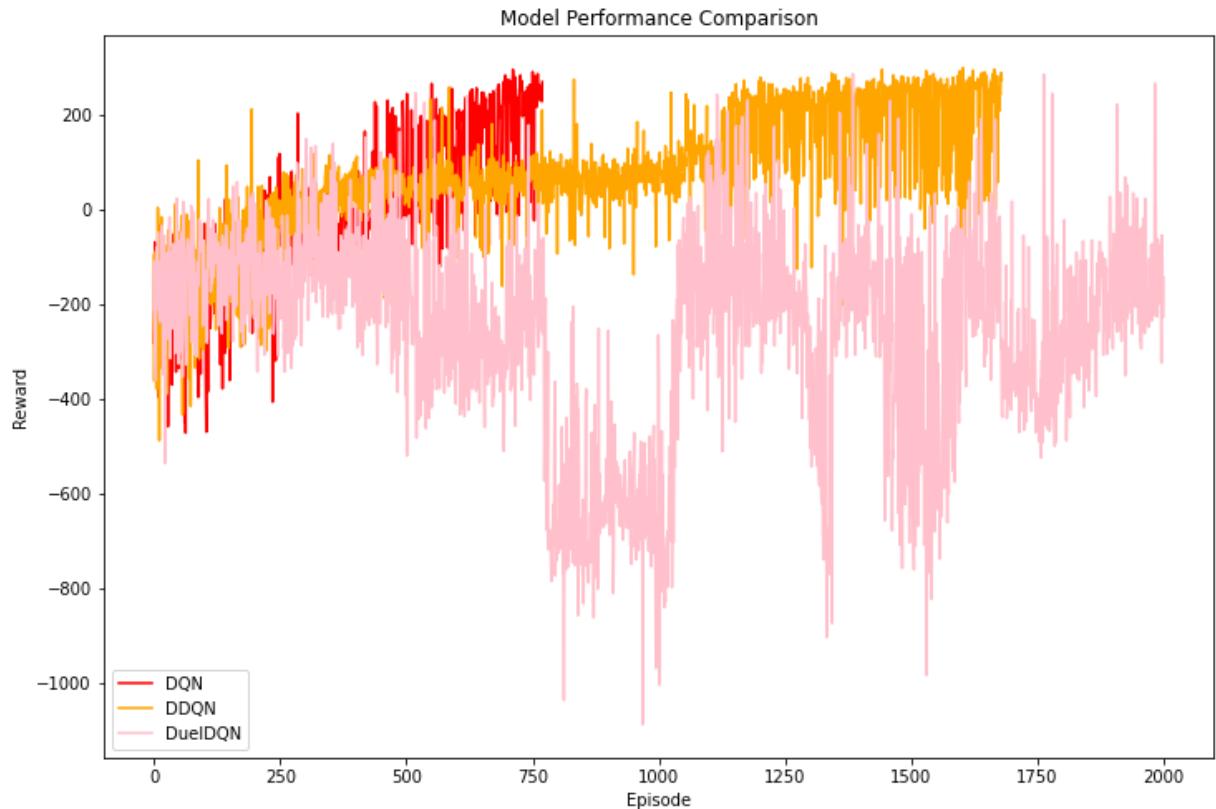
plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_doubledqn, 'orange',label='DDQN')

plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_3dqn,'pink',label='DuelDQN')

plt.title('Model Performance Comparison')

# agent.save('Model_dqn.h5')
plt.legend(loc=3)
# fig.savefig(reward+'.png', dpi=100)
plt.show()

```



Dueling DQN - hidden layers decreased

Duel Deep QNetwork did not improve in performance so reducing the number of hidden layers to check accuracy

```
In [ ]: class DuelingDQN(nn.Module):

    def __init__(self, state_size, action_size, seed):
        super(DuelingDQN, self).__init__()
        self.input_dim = state_size
        self.output_dim = action_size

        self.feauture_layer = nn.Sequential(
            nn.Linear(state_size, 64),
            nn.ReLU(),
            nn.Linear(64, 64),
            nn.ReLU()
        )

        self.value_stream = nn.Sequential(
            nn.Linear(64, 64),
            nn.ReLU(),
            nn.Linear(64, 1)
        )

        self.advantage_stream = nn.Sequential(
            nn.Linear(64, 64),
            nn.ReLU(),
            nn.Linear(64, action_size)
        )

    def forward(self, state):
        features = self.feauture_layer(state)
        values = self.value_stream(features)
        advantages = self.advantage_stream(features)
        qvals = values + (advantages - advantages.mean())
```

```
    return qvals
```

```
In [ ]:
BUFFER_SIZE = int(1e5)      # replay buffer size
BATCH_SIZE = 64              # batch size
GAMMA = 0.99                 # discount factor
TAU = 1e-3                   # for soft update of target parameters
LR = 5e-4                    # learning rate
UPDATE_EVERY = 4

device = torch.device("cuda:0" if torch.cuda.is_available() else "cpu")
```

```
In [ ]:
class DuelingDeepQNAgent():
    """
    Operation : Agent learns from the environment using a DQN approach
    """

    def __init__(self, state_size, action_size, seed):
        """Initialize an Agent object.

        Params
        ======
            state_size (int): dimension of each state
            action_size (int): dimension of each action
            seed (int): random seed
        """
        self.state_size = state_size
        self.action_size = action_size
        self.seed = random.seed(seed)
        self.device = torch.device("cuda" if torch.cuda.is_available() else "cpu")

        # Q-Network
        self.qnetwork_local = DuelingDQN(state_size, action_size, seed).to(self.device)
        self.qnetwork_target = DuelingDQN(state_size, action_size, seed).to(self.device)
        self.optimizer = optim.Adam(self.qnetwork_local.parameters(), lr=LR)

        # Replay memory
        self.memory = ReplayBuffer(action_size, BUFFER_SIZE, BATCH_SIZE, seed)
        # Initialize time step (for updating every UPDATE_EVERY steps)
        self.t_step = 0

    def step(self, state, action, reward, next_state, done):
        # Save experience in replay memory
        self.memory.add(state, action, reward, next_state, done)

        # Learn every UPDATE_EVERY time steps.
        self.t_step = (self.t_step + 1) % UPDATE_EVERY
        if self.t_step == 0:
            # If enough samples are available in memory, get random subset and Learn
            if len(self.memory) > BATCH_SIZE:
                experiences = self.memory.sample()
                self.learn(experiences, GAMMA)

    def act(self, state, eps=0.):
        """Returns actions for given state as per current policy.

        Params
        ======
            state (array_like): current state
            eps (float): epsilon, for epsilon-greedy action selection
        """
        ...
```

```

state = torch.from_numpy(state).float().unsqueeze(0).to(device)
self.qnetwork_local.eval()
with torch.no_grad():
    action_values = self.qnetwork_local(state)
self.qnetwork_local.train()

# Epsilon-greedy action selection
if random.random() > eps:
    return np.argmax(action_values.cpu().data.numpy())
else:
    return random.choice(np.arange(self.action_size))

def learn(self, experiences, gamma):
    """Update value parameters using given batch of experience tuples.

    Params
    ======
        experiences (Tuple[torch.Variable]): tuple of (s, a, r, s', done) tuples
        gamma (float): discount factor
    """

    states, actions, rewards, next_states, dones = experiences

    q_expected = self.qnetwork_local(states).gather(1, actions)
# q_expected = q_expected.squeeze(1)
next_actions = self.qnetwork_local(next_states)
q_targets_next = torch.max(next_actions, 1)[0]
q_targets = rewards + GAMMA * q_targets_next

    ### Loss calculation (we used Mean squared error)
loss = F.mse_loss(q_expected, q_targets)
self.optimizer.zero_grad()
loss.backward()
self.optimizer.step()

# ----- update target network ----- #
self.soft_update(self.qnetwork_local, self.qnetwork_target, TAU)

    return q_expected - q_targets

def soft_update(self, local_model, target_model, tau):
    """Soft update model parameters.
    θ_target = τ*θ_local + (1 - τ)*θ_target

    Params
    ======
        local_model (PyTorch model): weights will be copied from
        target_model (PyTorch model): weights will be copied to
        tau (float): interpolation parameter
    """

    for target_param, local_param in zip(target_model.parameters(), local_model.
        target_param.data.copy_(tau*local_param.data + (1.0-tau)*target_param.da

```

In []:

```

def DuelDeepQNTrain(n_episodes=2000, max_t=500, eps_start=1.0, eps_end=0.01, eps_dec=0.001):
    """Deep Q-Learning.

    Params
    ======
        n_episodes (int): maximum number of training episodes
        max_t (int): maximum number of timesteps per episode
        eps_start (float): starting value of epsilon, for epsilon-greedy action selection
        eps_end (float): minimum value of epsilon
        eps_decay (float): multiplicative factor (per episode) for decreasing epsilon

```

```

    """
    scores = []                      # List containing scores from each episode
    scores_window = deque(maxlen=100)  # Last 100 scores
    eps = eps_start                  # initialize epsilon
    for i_episode in range(1, n_episodes+1):
        state = env.reset()
        score = 0
        for t in range(max_t):
            action = agent.act(state, eps)
            next_state, reward, done, _ = env.step(action)
            agent.step(state, action, reward, next_state, done)
            state = next_state
            score += reward
            if done:
                break
        scores.append(score)          # save most recent score
        scores_window.append(score)   # save most recent score
        eps = max(eps_end, eps_decay*eps) # decrease epsilon
        print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
        if i_episode % 100 == 0:
            print('\rEpisode {} \tAverage Score: {:.2f}'.format(i_episode, np.mean(scores)))
        if np.mean(scores_window)>=200.0:
            print('\nEnvironment solved in {:d} episodes!\tAverage Score: {:.2f}'.format(len(scores), np.mean(scores)))
            torch.save(agent.qnetwork_local.state_dict(), 'checkpoint.pth')
            break
    return scores

agent = DuelingDeepQNAgent(state_size=8, action_size=4, seed=0)
scores_dueldqn = DuelDeepQNTTrain()

```

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:101: UserWarning: Using a target size (torch.Size([64, 64])) that is different to the input size (torch.Size([64, 1])). This will likely lead to incorrect results due to broadcasting. Please ensure they have the same size.

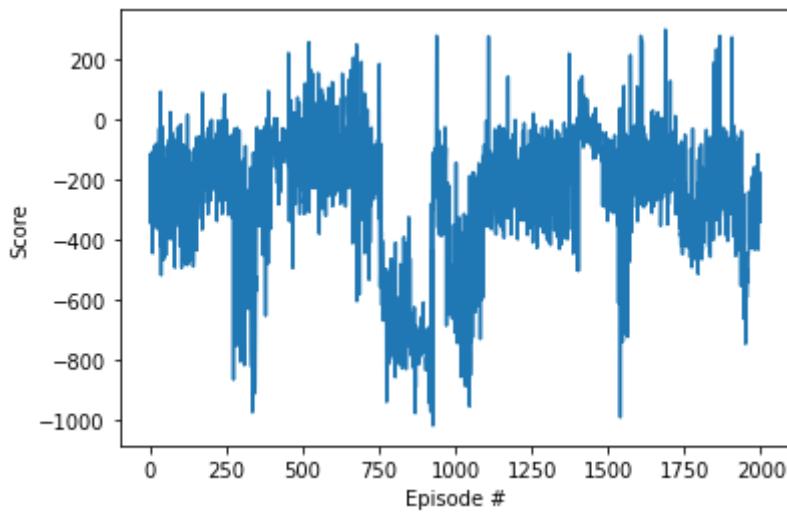
Episode	Average Score
100	-222.34
200	-197.80
300	-219.16
400	-318.45
500	-111.47
600	-96.10
700	-142.02
800	-392.35
900	-705.37
1000	-441.26
1100	-497.97
1200	-193.97
1300	-224.99
1400	-195.09
1500	-74.98
1600	-221.51
1700	-129.85
1800	-268.53
1900	-219.62
2000	-320.26

In []:

```

#DuelingDQN - hiddenLayers * 2
fig = plt.figure()
ax = fig.add_subplot(111)
plt.plot(np.arange(len(scores_dueldqn)), scores_dueldqn)
plt.ylabel('Score')
plt.xlabel('Episode #')
plt.show()

```



In []:

```
from numpy.core.fromnumeric import size
plt.figure(figsize=(15,12))

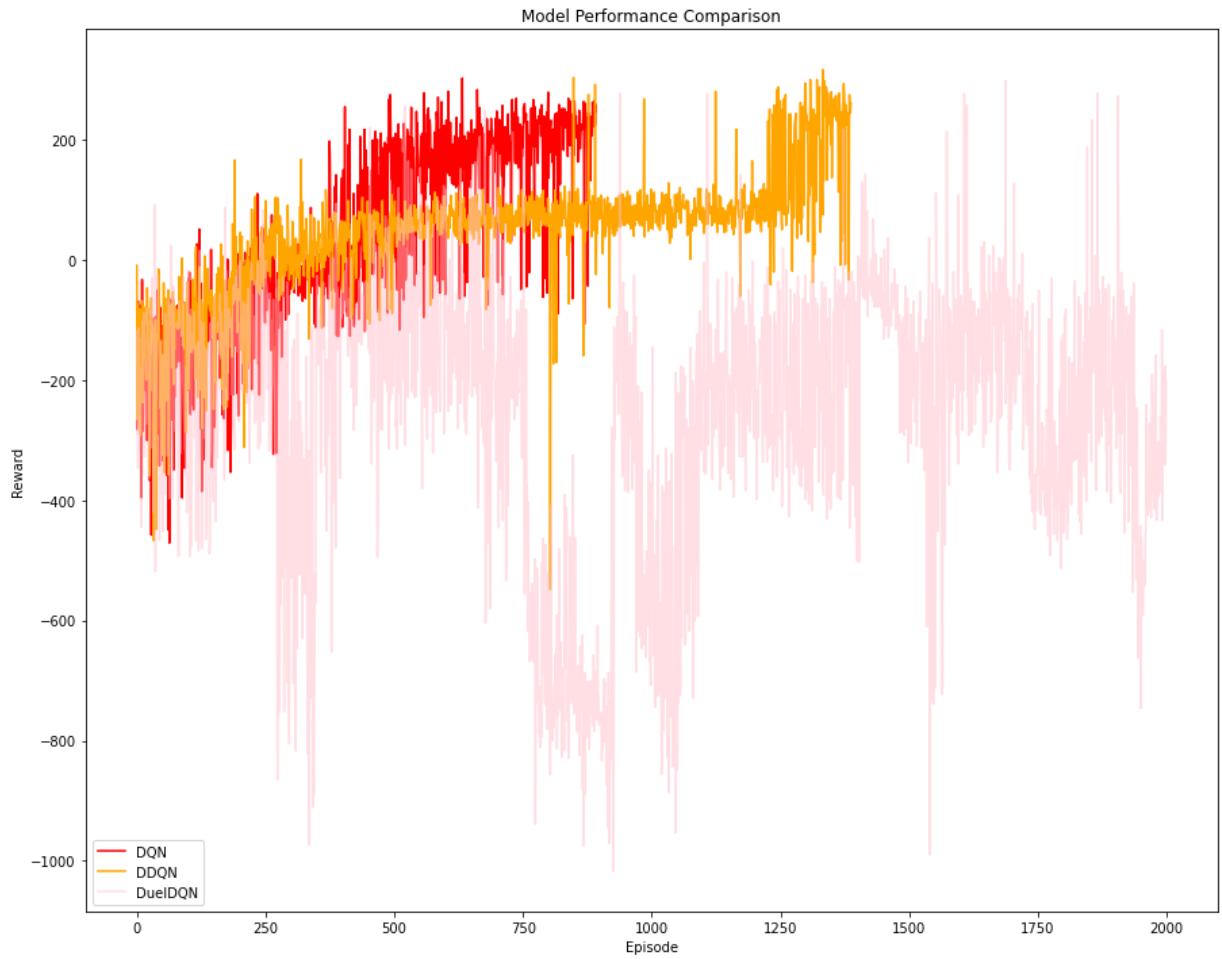
dlist = ['DQN', 'DDQN', 'DuelDQN']
# df=pd.DataFrame({'DQN':scores_dqn, 'DDQN':scores_ddqn, 'DuelDQN':scores_3dqn})
plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_dqn, 'r', label='DQN')

plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_dueldqn, 'orange',label='DDQN')

plt.xlabel("Episode")
plt.ylabel("Reward")
plt.plot(scores_dueldqn,'pink',label='DuelDQN', alpha=.5)

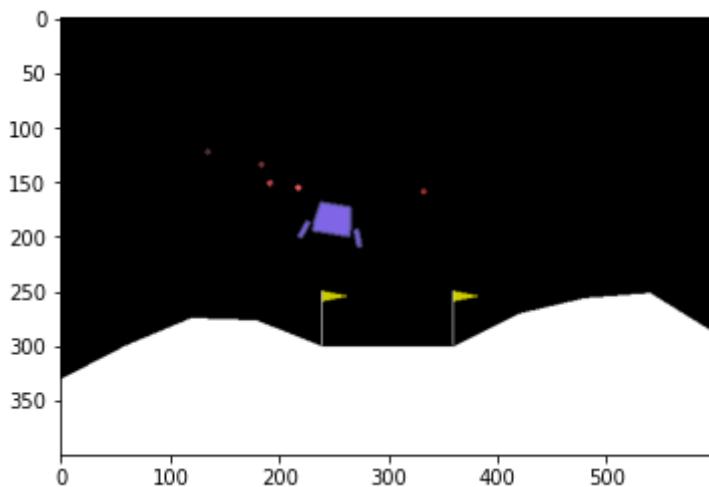
plt.title('Model Performance Comparison')

# agent.save('Model_dqn.h5')
plt.legend(loc=3)
# fig.savefig(reward+'.png', dpi=100)
plt.show()
```



Rendering Video

```
In [ ]:
env = gym.make('LunarLander-v2')
env.reset()
img = plt.imshow(env.render('rgb_array')) # only call this once
for _ in range(60):
    img.set_data(env.render('rgb_array')) # just update the data
    display.display(plt.gcf())
    display.clear_output(wait=True)
    action = env.action_space.sample()
    env.step(action)
```



```
In [ ]:
```


Beam Rider - Atari Environment problem with DQN

Installations and Imports

A set of required installations to run/render Atari gym problem with ROMs are installed.
Required libraries are imported

```
In [ ]: from google.colab import drive  
drive.mount('/content/drive')
```

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

```
In [ ]: import os  
  
GOOGLE_DRIVE_PATH_AFTER_MYDRIVE = 'ColabNotebooks/DRL/CourseWork'  
GOOGLE_DRIVE_PATH = os.path.join('drive', 'My Drive', GOOGLE_DRIVE_PATH)  
print(os.listdir(GOOGLE_DRIVE_PATH))  
  
['CheeseProblem - Q learning.ipynb', 'Untitled2.ipynb', 'pong', 'Copy of simple_DQN.ipynb', 'Untitled folder', 'DQN_SpaceInvader.ipynb', 'Copy of DQN_SpaceInvader.ipynb', 'Trial-1 Pong_DQN_Rllib.ipynb', 'Q_Learning CheeseMouse Problem.ipynb', 'Pong_PPO.ipynb', 'Pong_DQN_Rllib.ipynb']
```

```
In [ ]: !pip install gym
!pip install pyglet==1.2.4
import urllib.request
urllib.request.urlretrieve('http://www.atarimania.com/roms/Roms.rar')

!pip install unrar
!unrar x Roms.rar

# !python -m atari_py.import_roms rars
!pip install "gym[atari,accept-rom-license]"
!pip install atari-py
!apt install xvfb -y
!pip install pyvirtualdisplay
!pip install piglet
!apt-get install python-opengl -y
!apt install xvfb -y
!python -m atari_py.import_roms ROMS

!pip install -U "ray[tune]" # installs Ray + dependencies for Ray
!pip install -U "ray[rllib]" # installs Ray + dependencies for Ray
!pip install -U "ray[serve]"
!pip install 'ray[rllib]==1.6'
!apt-get install -y xvfb x11-utils
# !pip install pyvirtualdisplay==0.2.*
!pip install tensorboardX
!pip install tensorboard ==2.4.0
%matplotlib inline
import matplotlib.pyplot as plt
```

Streaming output truncated to the last 5000 lines.

```
Extracting ROMS/Beany Bopper (1983) (CCE) (C-835).bin
3 0K
Extracting ROMS/Bear Game Demo (Paddle) (1983) (SEGA, Fred Mack)
) ~.bin      3 0K
Extracting ROMS/Beat 'Em & Eat 'Em (Paddle) (1982) (Mystique –
American Multiple Industries, Joel H. Martin) (1003) ~.bin      3
OK
Extracting ROMS/Beat 'Em & Eat 'Em (Paddle) (1982) (Mystique –
American Multiple Industries, Joel H. Martin) (PAL).bin      3 0
K
Extracting ROMS/Beat 'Em & Eat 'Em (Paddle) (1982) (PlayAround
– JHM) (204).bin      3 0K
Extracting ROMS/Beat 'Em & Eat 'Em (Paddle) (1983) (Dynacom).bi
n      3 0K
Extracting ROMS/Berenstain Bears (Kid Vid Voice Module) (1983)
(Coleco) (2658) ~.bin      3 0K
Extracting ROMS/Bermuda (AKA River Raid) (1983) (Quelle) (322.9
13 5) (PAL).bin      3 0K
Extracting ROMS/Bermuda (AKA River Raid) (Quelle) (322.913 5) (PAL).bin      3 0K
```

```
In [ ]: !pip install -U pip
!pip install tensorflow==2.0.0
!pip install tensorboardX
!pip install tensorboard = [2.4.0]
```

```
Requirement already satisfied: pip in /usr/local/lib/python3.7/dist-packages (22.0.4)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager.
It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
Requirement already satisfied: tensorflow==2.0.0 in /usr/local/lib/python3.7/dist-packages (2.0.0)
Requirement already satisfied: numpy<2.0,>=1.16.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.21.6)
Requirement already satisfied: astor>=0.6.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (0.8.1)
Requirement already satisfied: google-pasta>=0.1.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (0.2.0)
Requirement already satisfied: keras-preprocessing>=1.0.5 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.1.2)
Requirement already satisfied: protobuf>=3.6.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (3.17.3)
Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.1.0)
Requirement already satisfied: gast==0.2.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (0.2.2)
Requirement already satisfied: tensorflow-estimator<2.1.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (2.0.1)
Requirement already satisfied: wrapt>=1.11.1 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.14.0)
Requirement already satisfied: wheel>=0.26 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (0.37.1)
Requirement already satisfied: tensorboard<2.1.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (2.0.2)
Requirement already satisfied: grpcio>=1.8.6 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.43.0)
Requirement already satisfied: six>=1.10.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.15.0)
Requirement already satisfied: absl-py>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.0.0)
Requirement already satisfied: opt-einsum>=2.3.2 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (3.3.0)
Requirement already satisfied: keras-applications>=1.0.8 in /usr/local/lib/python3.7/dist-packages (from tensorflow==2.0.0) (1.0.8)
Requirement already satisfied: h5py in /usr/local/lib/python3.7/dist-packages (from keras-applications>=1.0.8->tensorflow==2.0.0) (3.1.0)
Requirement already satisfied: google-auth<2,>=1.6.3 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (1.35.0)
Requirement already satisfied: setuptools>=41.0.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (57.4.0)
Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (0.4.6)
```

```
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (3.3.6)
Requirement already satisfied: werkzeug>=0.11.15 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (1.0.1)
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.7/dist-packages (from tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (2.23.0)
Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist-packages (from google-auth<2,>=1.6.3->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (0.2.8)
Requirement already satisfied: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dist-packages (from google-auth<2,>=1.6.3->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (4.2.4)
Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.7/dist-packages (from google-auth<2,>=1.6.3->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (4.8)
Requirement already satisfied: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (1.3.1)
Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/dist-packages (from markdown>=2.6.8->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (4.11.3)
Requirement already satisfied: urllib3!=1.25.0,!>=1.25.1,<1.26,>=1.21.1 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (1.24.3)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (3.0.4)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests<3,>=2.21.0->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (2021.10.8)
Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packages (from h5py->keras-applications>=1.0.8->tensorflow==2.0.0) (1.5.2)
Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (3.8.0)
Requirement already satisfied: typing-extensions>=3.6.4 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4->markdown>=2.6.8->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (4.1.1)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-packages (from pyasn1-modules>=0.2.1->google-auth<2,>=1.6.3->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.0) (0.4.8)
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.1.0,>=2.0.0->tensorflow==2.0.
```

0) (3.2.0)

WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager.
It is recommended to use a virtual environment instead: <https://pip.pypa.io/warnings/venv>

Requirement already satisfied: tensorboardX in /usr/local/lib/python3.7/dist-packages (2.5)

Requirement already satisfied: numpy in /usr/local/lib/python3.7/dist-packages (from tensorboardX) (1.21.6)

Requirement already satisfied: protobuf>=3.8.0 in /usr/local/lib/python3.7/dist-packages (from tensorboardX) (3.17.3)

Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from tensorboardX) (1.15.0)

WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager.
It is recommended to use a virtual environment instead: <https://pip.pypa.io/warnings/venv>

ERROR: Invalid requirement: '='

Hint: = is not a valid operator. Did you mean == ?

```
In [ ]: import pandas as pd
import numpy as np

import gym
import ray
import matplotlib.pyplot as plt
from IPython import display
from gym.wrappers.monitoring.video_recorder import VideoRecorder
from ray import tune
from pyvirtualdisplay import Display
from IPython.display import HTML
from ray.rllib.agents.dqn import DQNTrainer, DEFAULT_CONFIG

%matplotlib notebook
%matplotlib inline
import matplotlib.pyplot as plt
# from gym.wrappers.monitoring.video_recorder import VideoRecorder
import seaborn as sns
from ray.tune.schedulers import ASHAScheduler
from pyvirtualdisplay import Display
display = Display(visible=False, size=(1400, 900))
_ = display.start()
```

```
In [ ]:
```

Basic Beam Rider train

```
In [ ]: import gym
env = gym.make('BeamRider-v0')
env.reset()
```

```
for i in range(100):
    env.render()
    observation, reward, done, info = env.step(env.action_space.sample())
    print("step", i, reward, done, info)
env.close()
```

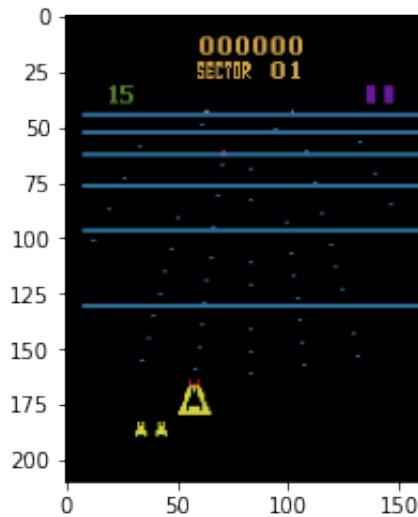
```
step 0 0.0 False {'ale.lives': 3}
step 1 0.0 False {'ale.lives': 3}
step 2 0.0 False {'ale.lives': 3}
step 3 0.0 False {'ale.lives': 3}
step 4 0.0 False {'ale.lives': 3}
step 5 0.0 False {'ale.lives': 3}
step 6 0.0 False {'ale.lives': 3}
step 7 0.0 False {'ale.lives': 3}
step 8 0.0 False {'ale.lives': 3}
step 9 0.0 False {'ale.lives': 3}
step 10 0.0 False {'ale.lives': 3}
step 11 0.0 False {'ale.lives': 3}
step 12 0.0 False {'ale.lives': 3}
step 13 0.0 False {'ale.lives': 3}
step 14 0.0 False {'ale.lives': 3}
step 15 0.0 False {'ale.lives': 3}
step 16 0.0 False {'ale.lives': 3}
step 17 0.0 False {'ale.lives': 3}
step 18 0.0 False {'ale.lives': 3}
step 19 0.0 False {'ale.lives': 3}
step 20 0.0 False {'ale.lives': 3}
step 21 0.0 False {'ale.lives': 3}
step 22 0.0 False {'ale.lives': 3}
step 23 0.0 False {'ale.lives': 3}
step 24 0.0 False {'ale.lives': 3}
step 25 0.0 False {'ale.lives': 3}
step 26 0.0 False {'ale.lives': 3}
step 27 0.0 False {'ale.lives': 3}
step 28 0.0 False {'ale.lives': 3}
step 29 0.0 False {'ale.lives': 3}
step 30 0.0 False {'ale.lives': 3}
step 31 0.0 False {'ale.lives': 3}
step 32 0.0 False {'ale.lives': 3}
step 33 0.0 False {'ale.lives': 3}
step 34 0.0 False {'ale.lives': 3}
step 35 0.0 False {'ale.lives': 3}
step 36 0.0 False {'ale.lives': 3}
step 37 0.0 False {'ale.lives': 3}
step 38 0.0 False {'ale.lives': 3}
step 39 0.0 False {'ale.lives': 3}
step 40 0.0 False {'ale.lives': 3}
step 41 0.0 False {'ale.lives': 3}
step 42 0.0 False {'ale.lives': 3}
step 43 0.0 False {'ale.lives': 3}
step 44 0.0 False {'ale.lives': 3}
step 45 0.0 False {'ale.lives': 3}
step 46 0.0 False {'ale.lives': 3}
step 47 0.0 False {'ale.lives': 3}
```

```
step 48 0.0 False {'ale.lives': 3}
step 49 0.0 False {'ale.lives': 3}
step 50 0.0 False {'ale.lives': 3}
step 51 0.0 False {'ale.lives': 3}
step 52 0.0 False {'ale.lives': 3}
step 53 0.0 False {'ale.lives': 3}
step 54 0.0 False {'ale.lives': 3}
step 55 0.0 False {'ale.lives': 3}
step 56 0.0 False {'ale.lives': 3}
step 57 0.0 False {'ale.lives': 3}
step 58 0.0 False {'ale.lives': 3}
step 59 0.0 False {'ale.lives': 3}
step 60 0.0 False {'ale.lives': 3}
step 61 0.0 False {'ale.lives': 3}
step 62 0.0 False {'ale.lives': 3}
step 63 0.0 False {'ale.lives': 3}
step 64 0.0 False {'ale.lives': 3}
step 65 0.0 False {'ale.lives': 3}
step 66 0.0 False {'ale.lives': 3}
step 67 0.0 False {'ale.lives': 3}
step 68 0.0 False {'ale.lives': 3}
step 69 0.0 False {'ale.lives': 3}
step 70 0.0 False {'ale.lives': 3}
step 71 0.0 False {'ale.lives': 3}
step 72 0.0 False {'ale.lives': 3}
step 73 0.0 False {'ale.lives': 3}
step 74 0.0 False {'ale.lives': 3}
step 75 0.0 False {'ale.lives': 3}
step 76 0.0 False {'ale.lives': 3}
step 77 0.0 False {'ale.lives': 3}
step 78 0.0 False {'ale.lives': 3}
step 79 0.0 False {'ale.lives': 3}
step 80 0.0 False {'ale.lives': 3}
step 81 0.0 False {'ale.lives': 3}
step 82 0.0 False {'ale.lives': 3}
step 83 0.0 False {'ale.lives': 3}
step 84 0.0 False {'ale.lives': 3}
step 85 0.0 False {'ale.lives': 3}
step 86 0.0 False {'ale.lives': 3}
step 87 0.0 False {'ale.lives': 3}
step 88 0.0 False {'ale.lives': 3}
step 89 0.0 False {'ale.lives': 3}
step 90 0.0 False {'ale.lives': 3}
step 91 0.0 False {'ale.lives': 3}
step 92 0.0 False {'ale.lives': 3}
step 93 0.0 False {'ale.lives': 3}
step 94 0.0 False {'ale.lives': 3}
step 95 0.0 False {'ale.lives': 3}
step 96 0.0 False {'ale.lives': 3}
step 97 0.0 False {'ale.lives': 3}
step 98 0.0 False {'ale.lives': 3}
step 99 0.0 False {'ale.lives': 3}
```

```
In [ ]: from pyvirtualdisplay import Display
Display().start()

import gym
from IPython import display
import matplotlib.pyplot as plt
%matplotlib inline

Display().start()
env = gym.make('BeamRider-v0')
env.reset()
img = plt.imshow(env.render('rgb_array')) # only call this once
for _ in range(100):
    img.set_data(env.render('rgb_array')) # just update the data
    display.display(plt.gcf())
    display.clear_output(wait=True)
    action = env.action_space.sample()
    env.step(action)
```



DQN Trained with one set of basic parameters

```
In [ ]: import ray
import ray.rllib.agents.dqn as dqn
from ray.tune.logger import pretty_print

config = {
    'framework': 'torch',
    'model': {'fcnet_activation': 'relu', 'fcnet_hiddens': [32]},
    'gamma': 0.8,
    'lr': 0.01,
    'buffer_size': 5000,
    'num_gpus_per_worker': 1,
    'monitor': True
}
trainer_basic = dqn.DQNTrainer(config=config, env='MsPacman-v0')
avg_rewards_basic = []

for i in range(20):
    # Perform one iteration of training the policy with PPO
    result = trainer_basic.train()

    if i % 10 == 0:
        checkpoint = trainer_basic.save()
    if np.isnan(result['episode_reward_mean']):
        continue
    avg_rewards_basic.append(result['episode_reward_mean'])
```

2022-04-23 18:01:47,926 WARNING deprecation.py:39 -- DeprecationWarning: `monitor` has been deprecated. Use `record_env` instead. This will raise an error in the future!

2022-04-23 18:01:48,303 WARNING util.py:55 -- Install gputil for GPU system monitoring.

Setting the path for recording to /root/ray_results/DQN_MsPacman-v0_2022-04-23_18-01-474h2zi7vs/

```
In [ ]: avg_rewards_basic
```

```
Out[22]: [400.0,
270.0,
256.666666666667,
392.0,
371.666666666667,
415.0,
393.333333333333,
413.636363636363,
420.0,
414.2857142857143,
418.666666666667,
407.05882352941177,
411.111111111111,
410.5,
408.636363636363,
409.5652173913044,
418.75,
436.8,
449.2307692307692]
```

```
In [ ]: plt.figure(figsize=((10,8)))
plt.plot(np.arange(len(avg_rewards_basic)), avg_rewards_basic)
plt.show()
```

```
<Figure size 720x576 with 1 Axes>
```

Ray Tune to perform Grid Search

Find the best set of hyper Parameters for DQN

Tensorboard to display the learning of agent for each combination of hyper parameter

```
In [ ]: %reload_ext tensorboard
```

```
In [ ]: %reload_ext tensorboard
%tensorboard --logdir /content/BeamRider-v0/DQN
```

```
<IPython.core.display.Javascript object>
```

```
In [ ]: from ray.tune import schedulers
from ray import resource_spec

# from gym.wrappers.monitoring.video_recorder import VideoRecorder

sns.set()
```

```
ray.shutdown()
ray.init(num_cpus=3)

config1 = {
    "env" : "BeamRider-v0",
    "framework" : "torch",
    "model" : {
        "fcnet_activation" : ray.tune.grid_search(["linear","relu"]),
        "fcnet_hiddens" : ray.tune.grid_search([[32,32],[128,128]])
    },
    "gamma" : tune.grid_search([0.95, 0.8]),
    "lr": tune.grid_search([1e-2, 1e-3, 1e-4]),
    "dueling" : tune.grid_search([True, False]),
    "double_q" : tune.grid_search([True, False]),
    "buffer_size": 5000,
    "num_gpus_per_worker": 1,
    'monitor' : True,
}

ray.init(
    object_store_memory=10**9,
    num_cpus = 128,
    num_gpus = 1,
    include_dashboard = False,
    ignore_reinit_error =True,
    log_to_driver = False,
)

stop = {'training_iteration': 20 }

asha_scheduler = ASHAScheduler(
    #time_attr='training_iteration',
    metric='episode_reward_mean',
    mode='max',
    max_t=500,
    grace_period=1,
    reduction_factor=4,
    brackets=1)

analysis_tune_BeamRider = ray.tune.run(
    "DQN",
    config = config1,
    stop= stop,
    scheduler = asha_scheduler,
    checkpoint_freq=10,
    num_samples=10,
    checkpoint_at_end = True,
    local_dir = 'BeamRider-v0'

)
```

```
2022-04-23 13:58:40,088 INFO worker.py:836 -- Calling ray.init()
again after it has already been called.
```

```
-- Status --
Memory usage on this node: 2.7/25.5 GiB
Using AsyncHyperBand: num_stopped=0 Bracket: Iter 256.000: None | Iter 64.000: None
| Iter 16.000: None | Iter 4.000: None | Iter 1.000: None
Resources requested: 0/3 CPUs, 0/1 GPUs, 0.0/13.99 GiB heap, 0.0/6.99 GiB objects
(0.0/1.0 accelerator_type:P100)
Result logdir: /content/BeamRider-v0/DQN
Number of trials: 16/960 (16 PENDING)
```

Trial name	status	loc	double_q	dueling	gamma	lr	model/fcnet_activation
DQN_BeamRider-v0_7ab6b_00000	PENDING		True	True	0.95	0.01	relu
DQN_BeamRider-v0_7ab6b_00001	PENDING		False	True	0.95	0.01	relu

Best Hyper Parameters from GridSearch

```
In [ ]: best_config = analysis_tune_BeamRider.get_best_config(metric="episod
print(best_config)

{'env': 'BeamRider-v0', 'framework': 'torch', 'model': {'fcnet_acti
vation': 'relu', 'fcnet_hiddens': [32, 32]}, 'gamma': 0.95, 'lr': 0.01, 'dueling': True, 'double_q': False, 'buffer_size': 5000, 'num_gpus_per_worker': 1, 'monitor': True}
```

```
In [ ]: config = {
    'env': 'BeamRider-v0', 'framework': 'torch',
    'model': {'fcnet_activation': 'relu', 'fcnet_hiddens': [32, 32],
    'gamma': 0.95, 'lr': 0.01,
    'dueling': True, 'double_q': False,
    'buffer_size': 5000,
    'num_gpus_per_worker': 1,
    'monitor': True}

    trainer = DQNTuner(env = 'BeamRider-v0', config=config)

    avg_rewards_dqn = []
    for i in range(20):
        result = trainer.train()
        print(result['episode_reward_mean'])
        avg_rewards_dqn.append(result['episode_reward_mean'])

        if i % 10 == 0:
            checkpoint= trainer.save()
```

```
print("checkpoint save at", checkpoint)
```

2022-04-23 16:33:02,544 WARNING deprecation.py:39 -- DeprecationWarning: `monitor` has been deprecated. Use `record_env` instead. This will raise an error in the future!

2022-04-23 16:33:02,546 INFO dqn.py:188 -- In multi-agent mode, policies will be optimized sequentially by the multi-GPU optimizer. Consider setting simple_optimizer=True if this doesn't work for you.

2022-04-23 16:33:02,549 INFO trainer.py:728 -- Current log_level is WARN. For more information, set 'log_level': 'INFO' / 'DEBUG' or use the -v and -vv flags.

Setting the path for recording to /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-33-022bm496k0/

2022-04-23 16:33:02,995 WARNING util.py:55 -- Install gutil for GPU system monitoring.

nan

checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-33-022bm496k0/checkpoint_000001/checkpoint-1

nan

396.0

396.0

352.0

352.0

337.333333333333

337.333333333333

337.333333333333

337.333333333333

396.0

checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-33-022bm496k0/checkpoint_000011/checkpoint-11

352.0

352.0

352.0

293.333333333333

257.7142857142857

257.7142857142857

257.7142857142857

225.5

225.5

```
In [ ]: config = {
    'env': 'BeamRider-v0', 'framework': 'torch',
    'model': {'fcnet_activation': 'relu', 'fcnet_hiddens': [32, 32],
              'gamma': 0.95, 'lr': 0.01,
              'dueling': True, 'double_q': False,
              'buffer_size': 5000,
              'num_gpus_per_worker': 1,
              'monitor': False if done else True}
trainer = DQNTrainer(env = 'BeamRider-v0', config=config)
trainer.restore('/root/ray_results/DQN_BeamRider-v0_2022-04-23_16-3')
```

2022-04-23 16:49:59,676 WARNING deprecation.py:39 -- DeprecationWarning: `monitor` has been deprecated. Use `record_env` instead. This will raise an error in the future!
Install gputil for GPU system monitoring.

Setting the path for recording to /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-49-59a43kom8h/

/usr/local/lib/python3.7/dist-packages/ray/_private/services.py:23
8: UserWarning: Not all Ray Dashboard dependencies were found. To use the dashboard please install Ray using `pip install ray[default]`. To disable this message, set RAY_DISABLE_IMPORT_WARNING env var to '1'.

```
    warnings.warn(warning_message)
```

2022-04-23 16:50:00,798 INFO trainable.py:383 -- Restored on 172.2
8.0.2 from checkpoint: /root/ray_results/DQN_BeamRider-v0_2022-04-
23_16-33-022bm496k0/checkpoint_000011/checkpoint-11

2022-04-23 16:50:00,800 INFO trainable.py:390 -- Current state after restoring: {'_iteration': 11, '_timesteps_total': None, '_time_total': 140.58740615844727, '_episodes_total': 4}

```
In [ ]: avg_rewards_dqn = []
for i in range(200):
    result = trainer.train()
    print(result['episode_reward_mean'])
    avg_rewards_dqn.append(result['episode_reward_mean'])

if i % 10 == 0:
    checkpoint= trainer.save()
    print("checkpoint save at", checkpoint)
```

nan
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-49-59a43kom8h/checkpoint_000012/checkpoint-12
44.0
44.0
44.0
44.0
44.0
77.0
77.0
77.0
123.2
123.2
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-49-59a43kom8h/checkpoint_000022/checkpoint-22
132.0
132.0
176.0
176.0
176.0

Training from the stored checkpoint and rendering to check how the performance is

```
In [ ]: from base64 import b64encode
def render_mp4(videopath: str) -> str:
    """
    Gets a string containing a b4-encoded version of the MP4 video
    at the specified path.
    """
    mp4 = open(videopath, 'rb').read()
    base64_encoded_mp4 = b64encode(mp4).decode()
    return f'<video width=400 controls><source src="data:video/mp4;"'
    f'base64,{base64_encoded_mp4}" type="video/mp4"></video>'
```

```
In [ ]: from gym.wrappers.monitoring.video_recorder import VideoRecorder
from IPython.display import HTML
import torch as T
from gym import wrappers

env = gym.make('BeamRider-v0')
directory = "gym-out/"

env = wrappers.Monitor(env, directory, force=True)
env = trainer.workers.local_worker().env

after_training = "after_training_video_trained.mp4"
after_video = VideoRecorder(env, after_training)

obs = env.reset()

state = trainer.get_policy().get_initial_state()

done = False
while not done:
    env.render()
    after_video.capture_frame()

    action = trainer.compute_action(obs, state = state)
    observation, reward, done, info = env.step(action)
after_video.close()
env.close()

html = render_mp4(after_training)
HTML(html)
```

Out[11]:

```
In [ ]: env = gym.make('BeamRider-v0')
directory = "gym-out/"

env = wrappers.Monitor(env, directory, force=True)
env = trainer.workers.local_worker().env

after_training = "after_training_video_trained.mp4"
after_video = VideoRecorder(env, after_training)

obs = env.reset()

state = trainer.get_policy().get_initial_state()

done = False
while not done:
    env.render()
    after_video.capture_frame()

    action = trainer.compute_action(obs, state = state)
    observation, reward, done, info = env.step(action)
    after_video.close()
    env.close()

html = render_mp4(after_training)
HTML(html)
```

Out[13]:

```
In [ ]: config = {
    'env': 'BeamRider-v0', 'framework': 'torch',
    'model': {'fcnet_activation': 'relu', 'fcnet_hiddens': [32, 32],
    'gamma': 0.95, 'lr': 0.01,
    'dueling': True, 'double_q': False,
    'buffer_size': 5000,
    'num_gpus_per_worker': 1,
    'monitor': False if done else True}
trainer = DQNTrainer(env = 'BeamRider-v0', config=config)
trainer.restore('/root/ray_results/DQN_BeamRider-v0_2022-04-23_16-4
```

```
avg_rewards_dqn_train2 = []
for i in range(50):
    result = trainer.train()
    print(result['episode_reward_mean'])
    avg_rewards_dqn_train2.append(result['episode_reward_mean'])

if i % 10 == 0:
    checkpoint= trainer.save()
    print("checkpoint save at", checkpoint)
```

```
2022-04-23 17:30:51,995 WARNING deprecation.py:39 -- DeprecationWarning: `monitor` has been deprecated. Use `record_env` instead. This will raise an error in the future!
2022-04-23 17:30:52,364 WARNING util.py:55 -- Install gutil for GPU system monitoring.
2022-04-23 17:30:52,380 INFO trainable.py:383 -- Restored on 172.2
8.0.2 from checkpoint: /root/ray_results/DQN_BeamRider-v0_2022-04-
23_16-49-59a43kom8h/checkpoint_000202/checkpoint-202
2022-04-23 17:30:52,381 INFO trainable.py:390 -- Current state aft
er restoring: {'_iteration': 202, '_timesteps_total': None, '_time
_total': 2099.9176740646362, '_episodes_total': 94}

Setting the path for recording to /root/ray_results/DQN_BeamRider-
v0_2022-04-23_17-30-51b2kts808/
nan
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_1
7-30-51b2kts808/checkpoint_000203/checkpoint-203
nan
352.0
352.0
352.0
462.0
462.0
498.6666666666667
498.6666666666667
451.0
451.0
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_1
7-30-51b2kts808/checkpoint_000213/checkpoint-213
451.0
422.4
422.4
462.0
462.0
484.0
462.0
462.0
462.0
474.2222222222223
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_1
7-30-51b2kts808/checkpoint_000223/checkpoint-223
474.2222222222223
497.6
497.6
```

```
497.6
497.6
512.3636363636364
512.3636363636364
512.3636363636364
512.3636363636364
502.6666666666667
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_1
7-30-51b2kts808/checkpoint_000233/checkpoint-233
502.6666666666667
518.4615384615385
518.4615384615385
512.8571428571429
512.8571428571429
502.1333333333333
481.75
481.75
487.05882352941177
472.2222222222223
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_1
7-30-51b2kts808/checkpoint_000243/checkpoint-243
472.2222222222223
472.8421052631579
472.8421052631579
469.0
469.0
461.3333333333333
452.3636363636364
452.3636363636364
444.17391304347825
```

```
In [ ]: config = {
    'env': 'BeamRider-v0', 'framework': 'torch',
    'model': {'fcnet_activation': 'relu', 'fcnet_hiddens': [32, 32],
    'gamma': 0.95, 'lr': 0.01,
    'dueling': True, 'double_q': False,
    'buffer_size': 5000,
    'num_gpus_per_worker': 1,
    'monitor': False if done else True }
trainer1 = DQNTrainer(env = 'BeamRider-v0', config=config)
trainer1.restore('/root/ray_results/DQN_BeamRider-v0_2022-04-23_16-')

avg_rewards_dqn_train2 = []
for i in range(10):
    result = trainer1.train()
    print(result['episode_reward_mean'])
    avg_rewards_dqn_train2.append(result['episode_reward_mean'])

    if i % 10 == 0:
        checkpoint= trainer1.save()
        print("checkpoint save at", checkpoint)
```

2022-04-23 17:52:00,165 WARNING deprecation.py:39 -- DeprecationWarning: `monitor` has been deprecated. Use `record_env` instead. This will raise an error in the future!

2022-04-23 17:52:00,532 WARNING util.py:55 -- Install gputil for GPU system monitoring.

2022-04-23 17:52:00,544 INFO trainable.py:383 -- Restored on 172.28.0.2 from checkpoint: /root/ray_results/DQN_BeamRider-v0_2022-04-23_16-49-59a43kom8h/checkpoint_000202/checkpoint-202

2022-04-23 17:52:00,546 INFO trainable.py:390 -- Current state after restoring: {'_iteration': 202, '_timesteps_total': None, '_time_total': 2099.9176740646362, '_episodes_total': 94}

nan
checkpoint save at /root/ray_results/DQN_BeamRider-v0_2022-04-23_17-52-00avqy1llx/checkpoint_000203/checkpoint-203
nan
nan
nan
528.0
528.0
714.0
714.0
696.0

Rendered Video

```
In [ ]: env = gym.make('BeamRider-v0')
directory = "gym-out/"

env = wrappers.Monitor(env, directory, force=True)
env = trainer1.workers.local_worker().env

after_training = "after_training_video_trained.mp4"
after_video = VideoRecorder(env, after_training)

obs = env.reset()

state = trainer.get_policy().get_initial_state()

done = False
while not done:
    env.render()
    after_video.capture_frame()

    action = trainer1.compute_action(obs, state=state)
    observation, reward, done, info = env.step(action)
    after_video.close()
    env.close()

html = render_mp4(after_training)
HTML(html)
```

Out [19]:

In []:

Proximal Policy Optimization Implementation

Installing library dependencies

```
In [ ]: !pip install gym
!pip install pyglet==1.2.4
import urllib.request
urllib.request.urlretrieve('http://www.atarimania.com/roms/Roms.rar')

!pip install unrar
!unrar x Roms.rar

# !python -m atari_py.import_roms rars
!pip install "gym[atari,accept-rom-license]"
!pip install atari-py
!apt install xvfb -y
!pip install pyvirtualdisplay
!pip install piglet
!apt-get install python-opengl -y
!apt install xvfb -y
!python -m atari_py.import_roms ROMS

!pip install -U "ray[tune]" # installs Ray + dependencies for Ray
!pip install -U "ray[rllib]" # installs Ray + dependencies for Ray
!pip install -U "ray[serve]"
!pip install 'ray[rllib]==1.6'
!apt-get install -y xvfb x11-utils
# !pip install pyvirtualdisplay==0.2.*
!pip install tensorboard
%matplotlib inline
```

```
In [ ]: from google.colab import drive
drive.mount('/content/drive')
```

Mounted at /content/drive

Loading OpenAI Gym Beam Rider environment:

Space Invaders environment is loaded and tried to understand the environment by looking into the observation space and action space

```
In [ ]: import gym
import random
```

```
In [ ]: from pyvirtualdisplay import Display #for virtual display
display = Display(visible=0, size=(1400, 900))
_ = display.start()
```

```
In [ ]: env = gym.make('BeamRider-v0')
```

```
In [ ]: import random, math
import numpy as np

from ray.rllib.env.env_context import EnvContext
from ray.rllib.models import ModelCatalog

from gym.spaces import Discrete, Box

import ray
import ray.rllib.agents.dqn as dqn
from ray.tune.logger import pretty_print

from ray import tune
from ray.rllib.agents.ppo import PPOTrainer

from ray.tune.schedulers import ASHAScheduler
```

```
In [ ]: from ray.rllib.agents import ppo
```

```
In [ ]: #Load tensorboard notebook extension
%load_ext tensorboard
```

```
In [ ]: config = {
    "use_critic": True,
    "kl_coeff": 0.2, # initial coefficient for KL divergence
    "train_batch_size": 4000,
    "env": "SpaceInvaders-v0",
    "framework": "torch",
    "model": {
        "fcnet_hiddens": [32,32], # number of hidden layers used
        "fcnet_activation": "linear", # activation function used
    },
    "sgd_minibatch_size": 256, # minibatch size within each epoch
    "num_sgd_iter": 30, # number of epochs to execute per train batch
    "lr": 5e-5, # stepsize of SGD
    "vf_loss_coeff": 1.0, # coefficient of the value function loss
    "clip_param": 0.3, # PPO clip parameter
    "vf_clip_param": 10,
    "kl_target": 0.01,
    "batch_mode": "truncate_episodes"
}

stop = {"training_iteration": 20}
```

```
ray.shutdown()

ray.init(
    num_cpus = 8,
    num_gpus = 1,
    include_dashboard = False,
    ignore_reinit_error = True,
    log_to_driver = False,
)
# Asha scheduler is used implement early stopping
asha_scheduler = ASHAScheduler(
    time_attr='training_iteration',
    metric='episode_reward_mean',
    mode='max',
)

trainer = ppo.PPOTrainer(config = config, env = 'BeamRider-v0' )

avg_rewards_ppo = []
for i in range(20):
    result = trainer.train()
    print(result['episode_reward_mean'])
    avg_rewards_ppo.append(result['episode_reward_mean'])

    if i % 5 == 0:
        checkpoint= trainer.save()
        print("checkpoint save at", checkpoint)
```

```
/usr/local/lib/python3.7/dist-packages/ray/_private/services.py:23
8: UserWarning: Not all Ray Dashboard dependencies were found. To
use the dashboard please install Ray using `pip install ray[default]`. To disable this message, set RAY_DISABLE_IMPORT_WARNING env var to '1'.
    warnings.warn(warning_message)
2022-04-23 22:02:13,216 INFO ppo.py:159 -- In multi-agent mode, policies will be optimized sequentially by the multi-GPU optimizer. Consider setting simple_optimizer=True if this doesn't work for you.
2022-04-23 22:02:13,219 INFO trainer.py:728 -- Current log_level is WARN. For more information, set 'log_level': 'INFO' / 'DEBUG' or use the -v and -vv flags.
2022-04-23 22:02:23,306 INFO trainable.py:109 -- Trainable.setup took 10.092 seconds. If your trainable is slow to initialize, consider setting reuse_actors=True to reduce actor creation overheads.
2022-04-23 22:02:23,310 WARNING util.py:55 -- Install gutil for GPU system monitoring.

nan
checkpoint save at /root/ray_results/PP0_BeamRider-v0_2022-04-23_2
2-02-13dzjndf7k/checkpoint_00001/checkpoint-1
396.0
```

```
330.0
334.4
313.5
312.4
checkpoint save at /root/ray_results/PP0_BeamRider-v0_2022-04-23_2
2-02-13dzjndf7k/checkpoint_00006/checkpoint-6
297.0
323.7142857142857
327.25
331.29411764705884
332.2
checkpoint save at /root/ray_results/PP0_BeamRider-v0_2022-04-23_2
2-02-13dzjndf7k/checkpoint_00011/checkpoint-11
322.0
330.0
335.0769230769231
326.2068965517241
321.2
checkpoint save at /root/ray_results/PP0_BeamRider-v0_2022-04-23_2
2-02-13dzjndf7k/checkpoint_00016/checkpoint-16
324.0
324.8235294117647
339.777777777777777
340.42105263157896
```

```
In [ ]: import matplotlib.pyplot as plt
plt.figure(figsize=(10,8))
#plt.xlabel = ('episodes')
#plt.ylabel = ('average rewards')
#plt.title = ('average rewards accumulated for episodes')
plt.plot(avg_rewards_dqn, 'b.', alpha = .4)
plt.show()
```

<Figure size 720x576 with 1 Axes>

The code reference : Lab 8 and 9

<https://github.com/ray-project/ray/blob/master/rllib/agents/trainer.py>
(<https://github.com/ray-project/ray/blob/master/rllib/agents/trainer.py>)
<https://usermanual.wiki/m/d8984f2e85323f04b1b3e4597da5fc177cf7b2e13344b957445d9>
(<https://usermanual.wiki/m/d8984f2e85323f04b1b3e4597da5fc177cf7b2e13344b957445d9>)